

# **Exploring health sciences students' experiences of feedback in a Problem Based Learning tutorial: A Case Study in an African Medical School**

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## **DECLARATION**

By submitting this thesis, I declare that the entirety of the work contained therein is my own original work, that I am the authorship owner thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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## SUMMARY

Problem Based Learning (PBL) has been widely adopted by medical educators across the globe since its inception at McMaster Medical School in Canada. It is a student-centered instructional approach in which learners collaboratively solve problems and reflect on their learning experiences. PBL involves designing tasks as triggers for learning, and setting them in a context that may be relevant in the real world. Students work in small groups also known as tutorial groups supported by tutors, with the emphasis being student centered rather than teacher centered. This enables students to take charge of their own learning, conduct research, integrate theory and practice, and also apply knowledge and skills while developing solutions to a presented learning task. In such a setting, students construct their own knowledge and regulate their own learning activities in order to achieve the intended learning outcomes. Tutor feedback is an important aspect of the PBL tutorial process. This feedback is aimed at identifying students' strengths as well as learning gaps on a number of outcomes. These may include: knowledge, team work, communication skills, interpersonal skills, life-long and leadership skills among others. This study highlights the experiences and perceptions of health sciences students regarding tutor feedback in a PBL setting.

Learning in a PBL tutorial group setting is not only a cognitive process, but also influenced by socio-contextual factors. Therefore, this study has utilized both psychological as well as socio-cultural theory to understand and explain the students' experiences and perceptions of tutor feedback. It is envisaged that findings from the study will perhaps contribute to not only knowledge on the subject of feedback, but also to general teaching practice in health sciences education within Africa and beyond. Therefore, the over-arching objective of the study was to explore students' experiences and responses to tutor feedback as well as factors that influence those responses in a PBL tutorial setting in an African context.

It was an exploratory qualitative study using a case study approach. The study involved third year undergraduate health sciences students from Makerere University, College of Health Sciences that had attended PBL tutorials. The health sciences students who participated in the study were drawn from five disciplines namely: Medicine, Radiography, Nursing, Pharmacy and Dentistry. The tutorial groups thus consisted of students from these disciplines. Some of the tutors were also involved in the study to provide more understanding of the student experiences. Purposive-convenience sampling was used to select participants into the study. Multiple data collection methods used, included: in-depth individual interviews with students and tutors, focus group discussions with students, document reviews and observations of the tutorial process and the feedback process. Participant responses from the interviews and focus groups were audio

recorded and transcribed. The observations were guided by a checklist. For analysis of the transcriptions, thematic analysis was used in which raw data was coded. The developed codes were further related resulting into categories and subsequently into themes and clusters. The analysis was iterative in nature in which data was constantly compared.

The findings from the student interviews and focus group discussions were grouped into five clusters, each cluster having a number of themes. The first cluster related to the focus and nature of tutor feedback received by students during PBL tutorials. The themes from this cluster reflected that tutor feedback seemed to be limited in scope to address all the intended PBL outcomes. This observation was also reflected in the interview responses with the tutors. The second cluster was about factors influencing students' responses to tutor feedback. It was found out that both cognitive and socio-contextual factors influenced students' responses to tutor feedback. The themes in yet another cluster related to the ways in which students utilized tutor feedback in their learning. It was found out that students used feedback to activate their prior knowledge, reflect upon their own performance and also to engage in self-regulated learning processes. The last cluster and related themes spoke to the students' experiences of the feedback delivery process. The responses from the student interviews and focus group discussions were supported by key findings from the tutorial observations, document reviews and information from the tutors. An interpretation of these findings was guided by a framework developed from the Activity Theory. Overall, the key outcome of this study was the development of a structured feedback tool for PBL tutors.

## OPSOMMING

Probleemgebaseerde Leer en Onderrig (PBL) word algemeen deur gesondheidswetenskap-opvoeders aanvaar sedert die ontstaan daarvan by die McMaster Mediese Skool in Kanada. Dit is 'n student-gesentreerde benadering waarin studente saam probleme oplos en op hulle leerervaringe reflekteer. PBL behels die ontwerp van take deur die skep van scenario's wat dien as snellers vir leer. Studente werk in klein groepe, ook bekend as tutoriaal groepe, met 'student-gesentreerde' eerder as 'opvoeder-gesentreerde' ondersteuning van tutors. Hierdie benadering stel studente in staat om verantwoordelikheid te neem vir hulle eie leer, navorsing te doen, teorie en praktyk te integreer, sowel as kennis en vaardighede toe te pas terwyl hulle oplossings ontwikkel vir die leertaak wat aangebied word. Met hierdie benadering konstrueer studente hulle eie kennis en reguleer hulle hul eie leeraktiwiteite ten einde die beoogde leeruitkomst te bereik. Tutor-terugvoer is 'n belangrike aspek van die PBL tutoriaal proses. Hierdie terugvoer is daarop gemik om die sterkpunte sowel as leemtes van studente in verskeie areas van leeruitkomst, insluitende onder meer kennis, spanwerk, kommunikasievaardighede, interpersoonlike-vaardighede, lewens- en leierskapsvaardighede, te identifiseer. Hierdie studie beklemtoon die ervarings en persepsies van studente in die gesondheidswetenskappe met betrekking tot tutor-terugvoer in die gebruik van die PBL benadering. Leer in PBL tutoriaal-groepe is nie slegs 'n kognitiewe proses nie, maar word ook beïnvloed deur sosio-kontekstuele faktore; daarom maak hierdie studie gebruik van sielkundige sowel as sosio-kulturele teorieë om student-ervarings en persepsies van tutor-terugvoer te verklaar en te verduidelik. Dit word in die vooruitsig gestel dat die bevindings van hierdie studie dalk nie net sal bydra tot kennis op die gebied van terugvoer nie, maar ook op algemene onderrigpraktyk van gesondheidswetenskappe in Afrika en ook verder. Die oorkoepelende doelwit van hierdie studie is daarom die verkenning van studente-ervarings en response op tutor-terugvoer, sowel as die faktore wat hierdie response in 'n PBL tutoriaal-situasie in die Afrika konteks beïnvloed.

Dit was 'n verkennende kwalitatiewe studie wat gebruik gemaak het van 'n gevallestudie benadering. Die studie het voorgraadse derdejaar studente in gesondheidswetenskappe van die Makerere University, College of Health Sciences, wat die PBL tutoriale bygewoon het, betrek. Die studente wat aan die studie deelgeneem het, is uit vyf dissiplines geselekteer, naamlik: Medies, Radiografie, Verpleging, Farmakologie en Tandheelkunde; daarom het die tutoriaal-groepe ook uit studente van hierdie dissiplines bestaan. Daar is sommige van die tutors by die studie betrek om 'n beter begrip aan die studente se ervaring te gee. Doelgerigte en gerieflikheidsgedrewe steekproewe was gebruik om die deelnemers aan die studie te selekteer. Veelvuldige data-versamelingsmetodes, insluitende individuele in-diepte onderhoude met

studente en tutors, fokusgroep-onderhoude met studente, dokument-resensies en waarnemings van die terugvoerproses tydens tutorial, is gebruik. Die ouditiewe response van die deelnemers is band-opgeneem en getranskribeer. Die waarnemings was gerig deur 'n kontrolelys. Tematiese analyses waarin die rou data gekodeer was, is vir die analise van die transkripsies gebruik. Die kodes wat ontwikkel was het verdere verwantskappe getoon wat gelei het tot die identifisering van kategorieë en uiteindelik tot temas en klusters. Die ontleding waarin die data voortdurend vergelyk was, was herhalend van aard.

Die bevindings van die individuele in-diepte student-onderhoude en die fokusgroep-onderhoude was gegroepeer in vyf klusters – elk met 'n aantal temas. Die eerste kluster is verwant aan die fokus en aard van die tutor-terugvoer aan studente gedurende PBL tutoriale. Die temas van hierdie kluster het gereflekteer dat tutor-terugvoer waarskynlik van beperkende omvang was om al die beoogde PBL uitkomst te spreek. Hierdie waarneming was ook gereflekteer met die response van die tutors. Die tweede kluster het gehandel oor die faktore wat studente se respons op tutor-terugvoer beïnvloed. Daar is bevind dat beide kognitiewe en sosio-kontekstuele faktore die studente se respons op tutor-terugvoer beïnvloed. Die temas in 'n volgende kluster het die verwantskap getoon met die wyse waarop studente tutor-terugvoer gebruik in hulle leerproses. Daar was bevind dat studente terugvoer gebruik om hulle voorkennis te aktiveer, op hulle eie prestasie te reflekteer asook om in 'n selfregulerende leerproses betrokke te raak. Die laaste kluster en gepaardgaande temas het die studente ervarings van die terugvoerproses aangespreek. Die respons van die individuele student-onderhoude en ook fokusgroeponderhoude is ondersteun deur sleutelbevindinge van die tutoriaal waarnemings, dokument-resensies sowel as inligting bekom van die tutors. Die interpretasie van bevindinge in hierdie studie was gerig deur 'n raamwerk ontwikkel vanuit die Aktiwiteitsteorie. Die sleutel uitkomst van hierdie studie was die ontwikkeling van 'n gestruktureerde hulpmiddel vir PBL tutors om te gebruik tydens die terugvoerproses.

# Chapter 1

## ORIENTATION TO THE STUDY

### 1.1 INTRODUCTION AND BACKGROUND

Problem Based Learning (PBL) in health professions education<sup>1</sup> has existed for decades following its initial adoption at McMaster University Medical School in Canada in 1969 (Schwartz et al., 2001). Subsequently, PBL has been widely adopted across the globe (Euler and Kuhner, 2017; Hung, 2016; Wang et al., 2016). PBL is a student-centered instructional approach in which students collaboratively solve problems and reflect on their experiences in small learning groups, also called tutorial groups (Lu et al., 2014; Harden et al., 1999). It involves designing tasks as triggers for learning, and setting them in a context that may be relevant in the real world. It is these learning tasks that are sometimes referred to as *problems* (Zhang et al., 2015).

Examples of learning triggers in PBL include: written cases, clinical scenarios, medical images and story narratives. It is these, that provide a focal point for student learning (Euler and Kuhner, 2017; Ward and Lee 2002). Within the PBL groups, students are supported by tutors, with the emphasis of being student centered rather than teacher centered. This enables students to take charge of their own learning, conduct research, integrate theory and practice, and apply knowledge and skills while developing solutions to the defined problem (Kumar and Refaei, 2017; Savery, 2006). In such a setting, students construct their own knowledge, direct and monitor their own learning activities in order to achieve the intended learning outcomes.

Although PBL has sometimes been criticized for its failure to give students in-depth basic scientific knowledge compared to the didactic teacher-centred approaches (DeChambeau and Ramlo, 2017; Vernon and Blake, 1993), there is evidence to show that PBL has succeeded in other ways where the traditional didactic lecture approaches have had challenges. For example, reasons cited for the wide adoption of PBL include its superiority in emphasizing and imparting competencies such as problem solving, effective interpersonal communication, time

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<sup>1</sup> Health Professions Education is used synonymously with the word Medical Education so as to encompass the variety of health sciences disciplines.



management, planning, self-directed and life-long learning as well as critical thinking and reflective evaluation amongst students. These are key desirable outcomes of health professionals (Kirkman, 2017; Albanese, 2000; Colliver, 2000; Ertmer and Newby, 1993).

With the changing trends in health professions education towards facilitating the acquisition of desirable competencies that are responsive to community health challenges, the PBL tutorial process is a key avenue for inculcating many of the competencies cited above. In addition, Norman and Schmidt (2000) argue that learning in a social problem solving group (like the tutorial group) can result into meta-cognition including increased activation of prior knowledge, elaboration of knowledge and reflection. They also emphasize that PBL allows students to regulate their own learning during the process of acquiring new knowledge.

The delivery of feedback to students by the tutor is an important aspect of the PBL tutorial process. Feedback can be viewed as a form of information communicated to students with the intention of modifying students' thinking or behavior to facilitate learning and achieve the intended learning outcomes, thus making feedback a fundamental component in the learning process (Murdoch-Eaton and Bowen, 2017; Watling, 2014; Hughes, 2011; Brookhart, 2008). It often involves pointing out strengths as well as gaps, all aimed at enhancing learning. Feedback delivered to students within a PBL tutorial group (which is the focus of this study) occurs in real time during the tutorial sessions and is typically verbal (oral) in nature. In their study, Johnson et al. (2016) suggested that an educator's role in the case of verbal feedback still remains to enhance learning that leads to the acquisition of learner outcomes. However, in this study, Johnson et al. (2016) specifically focused on verbal feedback in a clinical learning environment. Similarly, a study by Suhoyo et al. (2017), which explored the value attached to feedback by students was constituted in a clinical learning environment, specifically focusing on the task of a mini-clinical examination.

Furthermore, Murdoch-Eaton (2012a) reported the importance of verbal feedback in the learning process of medical students. In her study, she highlighted differences between senior and junior students, reporting that senior students rated feedback meant for corrective action highly, compared to the junior students. In yet another study that focused on verbal feedback, it was suggested that verbal feedback was important in learning (Martin and Valdivia, 2017), though the focus of the study was largely on effects of student anxiety levels during online feedback

interactions. It has also been suggested in other literature that feedback is an important factor in guiding students to achieve the desired outcomes (Murdoch-Eaton and Bowen, 2017; Watling, 2014; Boud and Molloy, 2013; Nicol, 2013; Carless, 2013). However, in most of this research, the emphasis was not on the students' experiences of the verbal tutor feedback experienced within the context of a PBL tutorial, which is the focus of the present study. Verbal feedback involves speaking to an individual regarding their performance in executing a task (Carless, 2006). The major advantage of verbal feedback, thus seems to be the active real-time engagement and physical presence of the personalities involved which improves clarity of ideas being expressed (Johnson et al., 2016; Cho and MacArthur 2010; Kawashima et al., 2000).

## **1.2 STATEMENT OF THE PROBLEM**

In light of the above, it is clear that in the PBL realm, learning may be influenced by various factors, one of the most critical being feedback to students. Feedback has been widely studied from a health professions educational standpoint by various researchers (Murdoch-Eaton and Bowen, 2017; Hung, 2016; Renting et al., 2016; Tricio et al., 2016; Voyer et al., 2016; Telio et al., 2015; Ruegg, 2015; Mubuuqe and Leibowitz 2014; Watling et al., 2013; Watling et al., 2012; Kluger and Van Djik, 2010). Although all these researchers explore the concept of feedback differently, they all seem to agree that feedback is pivotal to student learning, and that it enables students to close the gaps between actual and desired performance. However, the focus of these studies has not been on feedback within the specific context of a PBL tutorial setting. The focus of this study is specifically on tutor feedback directed to the students. Makerere University, College of Health Sciences (MaKCHS), where the present study was conducted, and indeed many medical schools in Africa have adopted PBL student tutorials as a strategy of training self-directed and self-regulated learners (Amoako-Sakyi and Amonoo-Kuofi, 2015; Lu et al., 2014; Kiguli-Malwadde et al., 2006; Iputo and Kwizera, 2005). Despite the fact that PBL tutorials involve an important aspect of tutor feedback, the effectiveness of this feedback during these tutorials, students' responses to this feedback, factors that influence those responses and the potential of that feedback to support student learning within a PBL context has been less documented.

It is thus not adequately known whether tutor feedback delivered within a PBL tutorial discussion group has an impact on student learning, and whether such feedback can effectively guide students towards becoming effective learners. An in-depth understanding of students'

experiences of this feedback received within a tutorial context, and how that feedback supports or does not support their learning is thus needed. With PBL tutors continually delivering feedback to students during PBL tutorials, there could be a belief that such feedback is being responded to and utilized as intended. This could potentially be true or not, thus warranting further research. There is need to explore the experiences of students who are the recipients of this feedback and to find out how the feedback influences their learning. This is important because findings generated will perhaps assist instructors to improve the process of feedback delivery and the quality of that feedback, eventually improving the student learning experiences.

In addition, the need to explore the influence of socio-contextual factors on students' responses to feedback within a PBL tutorial setting is needed. A PBL tutorial is a social learning group where learning is not only likely to be influenced by student cognitive abilities, but also the environment in which that learning occurs. The extent to which tutorial contextual factors could potentially influence response to feedback by students in a PBL setting has been less reported as well. The aspect of context becomes even more significant in the African setting where PBL is implemented amidst scarcity of resources such as limited human resources, limited infrastructure, and work overload due to having only a few staff as well as inadequate training of faculty who act as PBL tutors. It is thus important to explore how feedback delivered in this context is received by students to inform their learning.

### **1.3 MOTIVATION**

African Medical Schools that have adopted PBL tutorial models have in the past utilized research on PBL and feedback emerging from outside African institutions (Kiguli-Malwadde et al., 2006). Africa has unique settings and challenges and thus health professions education in Africa needs to be guided by solutions from within African institutions driven by African academics. The need to explore the topic of feedback specifically focusing on feedback in a PBL tutorial context, and from the perspective of an African medical institution with limited human resources, was the major motivation for this doctoral study.

### **1.4 DELINEATION OF STUDY BOUNDARIES**

Before conducting the study, I first delineated the boundaries of the study. This was done in order to make the research process feasible within the time and resources available. This

involved limiting the study to only one institution, focusing the study on feedback within the specific context of a PBL tutorial setting and limiting the study participants to only a specific group of students (i.e. 3<sup>rd</sup> year students) as described later in Chapter 3. However, within the third year group of students, multiple disciplines were involved (i.e. medicine, nursing, dentistry, pharmacy and radiography) to provide a wide range of perspectives. In addition, some tutors involved in facilitating PBL tutorials were included in the study to provide further understanding of the student responses. The study also included reviews of documents and observations of student tutorials. Although, it would have been ideal to study feedback across multiple institutions in Africa where PBL is implemented, the resources available were limited to do such a multi-site study, hence the study took place at one institution (i.e. Makerere University).

## **1.5 STUDY ASSUMPTIONS**

This was a qualitative study and as such, there were basic assumptions that were considered. First, there is no single objective reality. Reality is subjective, complex and basically constructed by the study participants, researcher and even the audience reading the research findings (Tickle, 2017; Merriam, 2009). In other words, different people make their own meaning of reality and this is what qualitative researchers seek to understand. Second, knowledge is sometimes best constructed in natural settings (Freda and Esposito, 2017; O'Donnell et al., 2007). These positions informed the way in which this study was designed and conducted. In this study, the process occurred within the natural setting of active PBL tutorials and the research environment was not manipulated at any one time. In addition, the qualitative research process is interpretive in nature, whereby the researcher makes meaning out of the participants' responses and experiences of the phenomenon under investigation (Jamshed, 2014). In this study, I aimed at making meaning out of the students' and tutors' experiences and perspectives of feedback in a PBL tutorial context.

Another key assumption is that a qualitative research design may be unstructured and not fixed, but can get modified as the research process progresses, so as to generate the required data. Subsequently, findings from qualitative research are not always predictable in the initial stages. Theories and interpretations emerge from data being generated rather than pre-determining them before the actual data collection (Gaus, 2017). Lastly, it was assumed that the students being in their third year of study had adequate experience of the feedback process within a PBL tutorial,

and thus had the required information necessary to address the study objectives. A more elaborate description of the philosophical assumptions that underpinned this study is presented in Chapter 3.

## **1.6 RESEARCH QUESTIONS**

### ***Over-arching question***

Based on the gaps that were identified in literature, and in order to explore students' experiences of tutor feedback, the study addressed the following primary research question:

*How do students experience and respond to tutor feedback received during PBL tutorials?*

In order for me to address the above main research question, four sub-questions were formulated as follows:

### ***Sub-questions***

- 1) What are the students' experiences with tutor feedback received in a PBL tutorial?
- 2) What factors influence students' responses to and utilization of tutor feedback received in a PBL tutorial?
- 3) How do students utilize tutor feedback received to enhance their learning in a PBL context?
- 4) How do students experience the feedback delivery process in a PBL tutorial setting?

## **1.7 RESEARCH AIM AND OBJECTIVES**

The aim of the study was to explore undergraduate health sciences students' experiences of tutor feedback in a PBL tutorial setting, their responses to that feedback and factors that influence the responses. The specific objectives of the study were:

- 1) To explore students' experiences of tutor feedback received during PBL tutorials.
- 2) To explore factors that influence students' responses to and utilization of tutor feedback received in a PBL tutorial.
- 3) To explore ways in which students use tutor feedback to enhance their learning in a PBL context.
- 4) To explore students' experiences of the feedback delivery process during PBL tutorials.

## **1.8 OVERVIEW OF THE RESEARCH METHODOLOGY**

An interpretive paradigm was adopted for this study that generated qualitative data. Qualitative research methods aim at investigating a phenomenon in the setting where that phenomenon occurs, drawing from the opinions and perceptions of the research participants that experience the phenomenon (Merriam, 2009). Within the broader ambit of qualitative research designs and methods, this study specifically employed a case study approach to explore students' experiences of tutor feedback in a PBL tutorial. It has been argued that case studies are good for studying an issue within its natural setting and provides a deeper understanding of the issue within its broad and narrow context (Yin, 2009).

### **1.8.1 Methods of data generation**

Various methods of data generation were used in the study to achieve triangulation. This was done in order to get a deeper understanding of the phenomenon under investigation (i.e. students' experiences of tutor feedback). The data generation methods included: student individual interviews, focus group discussions with students, observations of the feedback process during tutorials and document reviews that involved review of curricular documents and PBL tutor guides. In order to get a better understanding of the student responses, some tutors were also individually interviewed. These methods are described in more detail in Chapter 3 (see section 3.3.3).

### **1.8.2 Population and Sampling**

The study population comprised of third year health sciences students from across five disciplines. Purposive-convenience sampling techniques were used to select students who had previous experience of feedback within a PBL tutorial context. The study population is further described in Chapter 3 (see section 3.3.2).

### **1.8.3 Data Analysis**

Thematic analysis was employed for the data generated in this study. This is a type of analysis where a researcher is interested in identifying common patterns within the data (Braun et al., 2014). The analysis process was guided by both Creswell's steps (Creswell, 2005) as well as the three levels of analysis suggested by Miles and Huberman (1994). These are further described in

Chapter 3 (see section 3.4). The framework by Miles and Huberman (1994) was particularly useful in re-packaging and aggregating the data from raw codes up to the final themes and clusters. The final level of the analysis process that relates to interpretation and synthesis of findings was guided by the Activity Theory which is described in more detail in Chapter 2 (see section 2.6).

### **1.8.4 Ethical Considerations**

The study was approved by the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University as well as the Research and Ethics Committee of the School of Medicine, Makerere University. Consent was also obtained from participants before collecting data.

## **1.9 DEFINITION OF KEY TERMS**

Feedback within the context of PBL in health professions education is a core concept to this study and is explored in depth in Chapter 2. However, in the next few sections, I provide some operational definitions of key terms that are relevant to this study.

### **1.9.1 Health Professions Education**

Health Professions Education in the context of this study refers to the training of health professionals in the various health disciplines that are involved in health care delivery. Health professions education has also been referred to as health sciences education or medical education in literature (Pusic et al., 2015). In this thesis, the terms *medical education*, *health sciences education* and *health professions education* have been occasionally used synonymously.

### **1.9.2 Tutor**

A tutor in the context of PBL is typically a faculty member that is part of a small student group whose role is to facilitate student discussion and their eventual learning by guiding and supporting them to achieve the intended learning outcomes. One way a tutor does this is by providing constructive feedback to students during the tutorial discussion. Due to the fact that a tutor facilitates the learning process, sometimes such a person is also called a facilitator (Hmelo-

Silver and Eberbach, 2012). Throughout this thesis, the words *tutor* and *facilitator* have been occasionally used synonymously.

### **1.9.3 Tutorial**

A tutorial is a learning session in the context of problem based learning that involves a small number of students coming together to discuss a given learning task, being guided by a tutor.

### **1.9.4 Problem Based Learning (PBL)**

Problem based learning is a student –centered learning approach where students collaboratively exchange ideas, views and opinions regarding a presented learning task (Hung, 2016). The learning task is sometimes called the *problem* which triggers the student discussion (see section 2.2).

## **1.10 CONCLUSION AND STRUCTURE OF THE STUDY**

Chapter 1 has described the background to this study including a general overview on PBL and feedback. The problem under investigation, motivation, delineation of study boundaries, assumptions, guiding research questions as well as specific study objectives have been presented. An overview of the research methodology as well as definition of some key terms relevant to the study were also presented. In Chapter 2 that follows, I present a synthesis of literature and theoretical perspectives on feedback upon which this study was anchored. The study setting and detailed research methodology that was followed for the empirical part of the study are described in Chapter 3. In this chapter, an explanation and justification of the research design used as well as methods of data generation and analysis are presented. Chapters 4 and 5 present the findings from the study. Chapter 4 offers findings from the first level of analysis while Chapter 5 reports on the findings from the second level of analysis. Chapter 6 is a synthesis and interpretation of the findings from the study being guided by the Activity Theory Framework. The thesis concludes with Chapter 7 which describes the key conclusions and implications of the findings, and also provides key directions for further research.



## **CHAPTER 2**

### **LITERATURE AND THEORETICAL PERSPECTIVES**

#### **2.1 INTRODUCTION**

This chapter presents literature and theoretical perspectives that informed the study. The chapter is divided into five major sections. Due to the fact that this study centred on feedback in a PBL context, the first section of the chapter sets this context by describing the evolution and current use of PBL in health professions education. Occasionally, the PBL philosophy is linked to the subject of feedback. The second section of the chapter presents the evolution of the concept of feedback in education. The third section focuses on feedback in learning, including its role in the learning process, principles of effective feedback, formative feedback as well as feedback and self-regulated learning. The fourth section of the chapter presents a synthesis of the key theories on feedback that informed the study. The fifth section specifically describes the Activity Theory which underpinned the synthesis and interpretation of the findings, and the chapter concludes with a discussion of the conceptual framework.

#### **2.2 OVERVIEW OF PROBLEM BASED LEARNING**

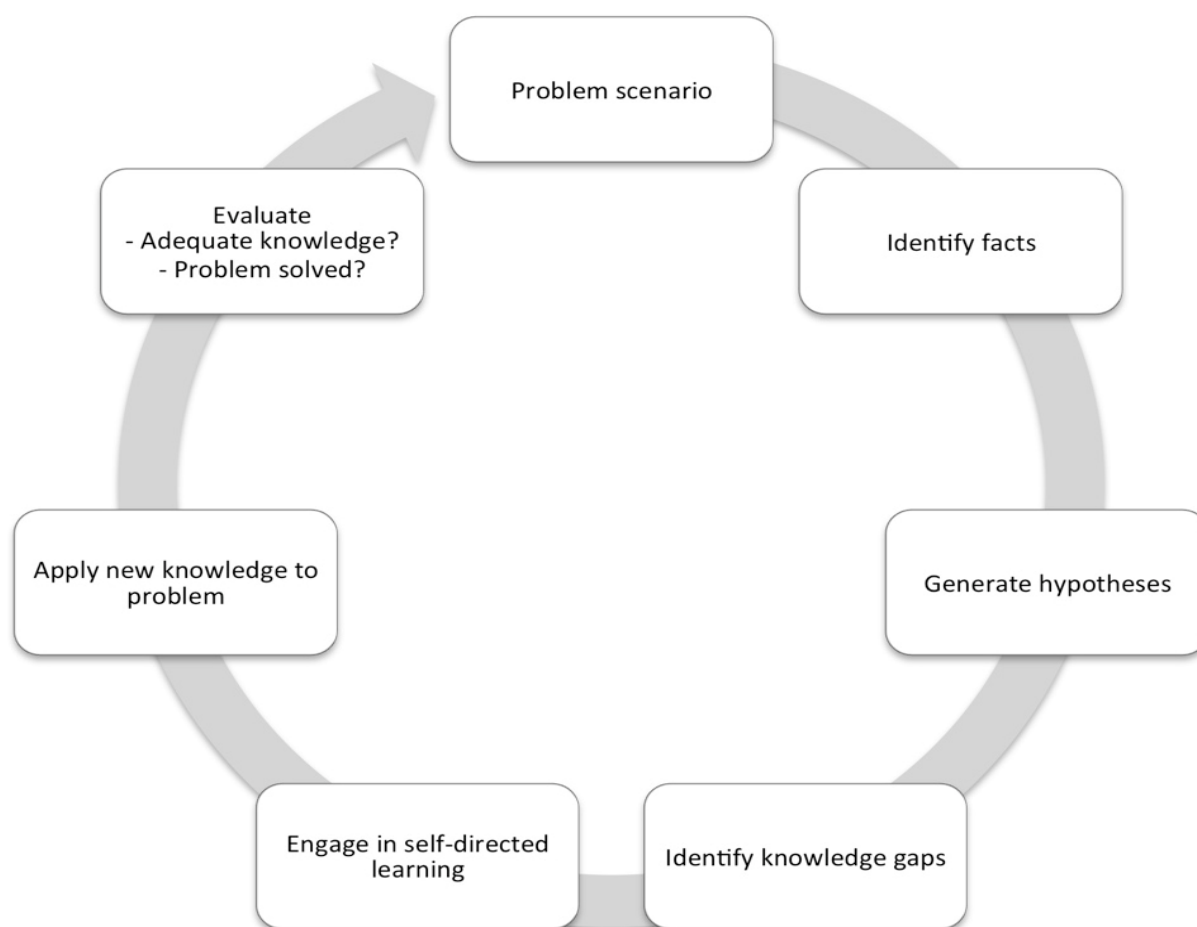
This study on feedback was conducted within the context of PBL. PBL refers to a learning strategy where students in a social group (i.e. the tutorial group) solve learning tasks (i.e. problems) and reflect on their learning process collaboratively as a group (Wijnen et al., 2017; Kassab et al., 2017; Wang et al., 2016; Harden et al., 1999). PBL in health professions education has been in application for long. First introduced in the 1960s at McMaster Medical School in Canada (Schwartz et al., 2001), PBL soon afterwards spread to three other Medical Schools namely: University of Limburg at Maastricht in Netherlands, University of Newcastle in Australia and the University of New Mexico in United States of America (Schwartz et al., 2001). To date, there are numerous applications of PBL across several other institutions around the world, and many medical and non-medical curricular are now based on PBL principles (Virtanen and Rasi, 2017; Wijnen et al., 2017; Euler and Kuhner, 2017; Niwa et al., 2016; Hung, 2016; Lee et al., 2008; Lehrer and Schauble, 2006; Duschl, 2005; Anderson and Glew, 2002). In South Africa, as well as West Africa, many medical schools have been using PBL as a method of instruction after it was realized that it was a good instructional strategy for students to

construct their own knowledge (Amoako-Sakyi and Amonoo-Kuofi, 2015; Malan et al., 2014; Dahms and Stentoft, 2008; Burch et al., 2007; Gukas, 2007; Iputo and Kwizera, 2005; Iputo, 1999). Similarly, in East Africa, PBL was introduced at Makerere University (Uganda) for the same reasons (Kiguli-Malwadde et al., 2009; Kiguli-Malwadde et al., 2006).

In the United Kingdom, over ten medical schools were reported to be using PBL for teaching and learning by 2009 (McKendree, 2010), while in Asia, the majority of the medical schools had incorporated PBL principles into their undergraduate medical training by the end of 2000 (Khoo, 2003). In the United states, following its early adoption by the University of New Mexico, 70% of the medical schools in the country were using PBL by the year 2003 (Kinkade, 2005). The use of PBL as a method of instruction for undergraduate students was also reported in Argentina (Carrera et al., 2003). Besides the health professions, PBL has also been introduced in many disciplines such as social work, science, engineering, business and management (Wijnen et al., 2017; Euler and Kuhner, 2017; Duschl, 2008; Lehrer and Schauble, 2006; Anderson and Glew, 2002).

From the aforementioned global overview, one can see that PBL has been positively adopted in many institutions across a range of contexts and countries. A key reason cited for this adoption of PBL is the training of professionals with competencies such as critical thinking, problem solving, reflection, collaborative, self-directed as well as life-long learning (Caswell, 2017; Yew and Goh, 2016; Ward and Lee, 2002; Schimdt, 1998). Literature on PBL emphasizes that it involves designing a learning task for the students (also called a problem), which acts as the stimulant for learning (Romito and Eckert, 2011; Koh et al., 2008; Azer, 2008). The learning task is addressed by the students in a naturalistic context (Savery, 2006; Ward and Lee, 2002). When solving the problem (i.e. learning task), students work in small groups called tutorial groups as a team guided by tutors, who do not teach, but rather just facilitate the students towards discovering new knowledge on their own (Williams and Paltridge, 2017; Lam and Lam, 2009; Savery, 2006; Schwartz et al., 2002). Within the tutorial group, students brainstorm the problem and identify what they need to learn from the problem (Hmelo-Silver, 2015; Strobel and van Barneveld, 2009; Dutch, 2001). The group members then share information and propose various solutions.

A typical PBL tutorial should be viewed as a process, comprising of a series of steps which guide students to collaboratively identify and clarify key concepts and facts in the presented learning task, drawing on their prior knowledge to generate various propositions and hypotheses. They (the students) then identify learning gaps that prevent them from conclusively solving the learning task. The identified gaps become the learning objectives that eventually guide the self-directed independent study outside the tutorial room. At the next session of the PBL tutorial process, students again collaboratively share their new found knowledge and evaluate whether the knowledge is sufficient or they need to discover more. These PBL tutorial steps have been described as a cycle (Hmelo-Silver and Eberbach, 2012). This cycle is illustrated in figure 2.1.



**Fig. 2.1: The PBL Cycle (Hmelo-Silver & Eberbach, 2012)**

Through the steps in Figure 2.1, the emphasis is to promote learner-centeredness where students take charge of constructing new knowledge (Chan et al., 2015; Strobel and van Barneveld, 2009). A key primary feature of PBL is thus the contextualized learning through a problem being solved by students within a tutorial group without formal lectures or prior preparatory study (Hmelo-Silver 2004; Torp and Sage, 2002). The role of the teacher (who in the tutorial is

called a tutor) is to guide students and promote sharing, interaction and exchange of ideas towards constructing new knowledge (Williams and Paltridge, 2017; Loyens et al., 2015; Peets et al., 2010; Hmelo-Silver and Barrows, 2006; Schwartz et al., 2001; Norman and Schmidt, 2000). In this context, a social group becomes a community of learning with the same interests.

Although learning would be present in many other contexts, it has been argued that the PBL tutorial process provides a more rich transformative learning experience to students compared to the traditional didactic lectures (Lu et al., 2014; Hmelo-Silver and Barrows, 2006). Transformative learning is a type of learning where students learn through task-oriented problem solving situations which provides an opportunity to students to engage in exchange of ideas, critical thinking, team work and communication (Tan et al., 2016; Xue et al., 2013; Hung and Loyens 2012; Frenk et al., 2010). For example, the tutorial group discussion facilitates not only knowledge acquisition, but also other desirable non-cognitive attributes needed for today's health professionals, such as: communication skills, team work, time management, leadership, interpersonal skills, and respect for others, all of them key attributes that have been reported in literature (Amin et al., 2010; Bhutta et al., 2010; Strobel and van Barneveld, 2009; Mubuuke et al., 2008; Savin-Baden, 2000). Many of these attributes may not easily be acquired in the more didactic teacher-centered teaching approaches that are more common in health professions education (Wirkala and Kuhn, 2011; Hmelo-Silver et al., 2007).

Despite its various advantages however, there have been some concerns about PBL as a learning approach. For example, Albanese and Mitchell (1993) observe that there is little evidence to suggest that PBL is more effective than the traditional teacher-centered lecture approaches, and that it is a challenge to have outcomes that measure the actual success of PBL. Other critics have also argued that PBL fails to give students adequate basic scientific knowledge, especially as measured by performance in factual recall examination assessments (Kirschner et al., 2006; Mayer, 2004; Colliver, 2000; Vernon and Blake, 1993). Kirschner et al. (2006) particularly pointed out that PBL lacks guided instructional approaches which could undermine learning. These concerns about PBL have continued to resonate even through some recent studies on PBL where it has been reported that the system faces challenges of limited tutor training in facilitation skills (Skinner et al, 2016).

However, Williams and Paltridge (2017) disagree that PBL is unstructured. Instead, they emphasize that this is due to a misunderstanding of PBL. They argue that PBL only requires a lot of scaffolding during various phases of the tutorial process to promote learning. This suggestion is also supported by other literature which reports that, the PBL tutorial process needs to be facilitated in phases in order to promote learning (Gijbels et al., 2005; Hmelo-Silver, 2004; Dochy et al., 2003). Schmidt et al. (2007) further supplement that PBL allows flexible adaptation of guidance rather than the direct instructional approach advocated for by Kirschner et al. (2006).

There is also a wide variation of what is actually referred to as PBL in many institutions, some of which implement a hybrid strategy, where some aspects of PBL are implemented alongside traditional lectures (Colliver, 2000). This implies that PBL is likely to be implemented differently in various settings. Furthermore, some settings lack adequate numbers of qualified facilitators to guide the PBL tutorial discussions (Colliver, 2000). The implication of this, is that without a proper understanding of the philosophy of PBL, students are perhaps not likely to effectively benefit from the key advantages of PBL when tutors do not exactly understand the key PBL principles. Therefore, students are likely to miss out on the key advantages from the PBL process.

The transition from a context where teachers are the sole sources of knowledge disseminated through high powered lectures to more student-centred learning principles in a PBL group, where students take control of the discussions and tutors just guide the discussion, is a challenge in many settings (Wijnen et al., 2017; Carriger, 2015; Ward and Lee, 2002). There is also a perception on the side of tutors that the traditional teacher's role of disseminating knowledge to large groups of students through lectures has been slowly taken away, and that the eventual workload increases with PBL (Wirkala and Kuhn, 2011; Evans and Jayasuriya, 2007).

A major challenge however, seems to be the transition of faculty from being teachers to becoming facilitators of small social learning groups (Evans and Jayasuriya, 2007). This is possibly because many faculty members may not be effectively trained to guide small group tutorials. Despite the wide variations of PBL models and contextual challenges across institutions, the locus of PBL remains the small student tutorial group across many PBL programmes (Whitehill et al., 2014). It is through the PBL tutorial group discussion that a

facilitator plays a key role of delivering instant feedback to guide students (Homer, 2014; Albanese, 2000).

In summary, a PBL tutorial has been described as a cycle of steps by Hmelo-Silver and Eberbach (2012). However, tutor feedback within the context of a PBL tutorial has been less researched. One would argue that as students go through the steps of the PBL cycle (Figure 2.1), tutor feedback would be very crucial to guide them. The significance of such immediate feedback, is that it would perhaps facilitate instant reflection about performance, and allow students to not only discover their strengths and learning gaps, but also formulate a plan to address the identified gaps when concepts and ideas are still fresh within their memory. Even in earlier PBL literature, the tutorial steps were well documented, but fundamentally lacked an explicit inclusion of facilitator feedback (Schmidt, 1983). Therefore, this study was aimed at exploring the subject of feedback in a PBL tutorial process to address the identified gap. In the next sections, the concept of feedback is specifically focused on.

## 2.3 EVOLUTION OF THE CONCEPT OF FEEDBACK

The roots of feedback can be traced back to the industrial revolution as a key component in the development of steam engines (Bunch and Hellemans, 2004). The idea was that one can monitor and regulate the output of an engine or any mechanical system and feed the information back into the system, thus controlling it. Similar analogies of feedback were later highlighted in biology, such as the adaptation of organisms to different conditions. However, these were not evident in education until the mid-twentieth century (Boud and Molloy, 2012). Feedback was later taken up by human systems and in science. For example, some researchers have reported that in the 1950s, Nobert Wiener created an interdisciplinary study of systems called cybernetics and he discussed the notion of feedback as below (Boud and Molloy, 2012: 4):

*Feedback is the control of a system by reinserting into the system the results of its performance. If these results are merely used as numerical data for criticism of the system and its regulation, we have the simple feedback of the control engineer. If, however, the information which proceeds backwards from the performance is able to change the general method and pattern of the performance, we have a process which may very well be called learning.*

When some form of feedback was later introduced in education, teachers simply marked students' work and provided marks as feedback to students without any reliance on feedback theory. This system seemed to ignore students' internal evaluations in the use of information received as feedback (Butler and Wine, 1995). Students' internal evaluations could be viewed as the perceptions students have towards feedback in terms of its quality, and whether it would assist them in their learning. This practice is still evident in some training institutions, and assumes that it is possible to change others using information (i.e. feedback) without their own internal reflections about that information (Alcantara and Roleda, 2017; Boud and Molloy, 2012).

Around the mid-1970s, feedback became adopted in education characterized by teachers solely telling students information intended to influence their learning (Ramaprasad, 1983). It was thus a one-way transmission of information from teachers to students. This form of feedback relied heavily on some key assumptions. The assumptions were that; 1) information given to students from teachers would influence their learning without involving the students; 2) if students only acted on information given by teachers, they would improve performance; 3) information transmitted by teachers in form of feedback was sufficient and clear enough to influence learning, and that information would be interpreted the same way by all students (Boud and Molloy, 2012).

With the introduction of new educational strategies such as PBL tutorials and self-directed learning, which encouraged students to be in control of their own learning processes, the aforementioned practices of delivering feedback were improved (Mory, 2004). Researchers such as Van de Ridder et al. (2008) and Huth (2004) speak to the fact that these new approaches improved feedback delivered since it was considered to be fundamental to student learning, especially in as far as achieving learning outcomes is concerned. Following the historical insights on feedback, subsequent studies on feedback continued to highlight its importance in the learning process and the fact that students should be involved in the feedback process.

## **2.4 THE CONCEPT OF FEEDBACK IN LEARNING**

Feedback can be conceptualized as information given to students with an aim of identifying strengths and weaknesses so as to formulate corrective action aimed at achieving the learning

outcomes (Murdoch-Eaton and Bowen, 2017; Ramani, 2016; Watling et al., 2014). This section further explores the concept of feedback in the learning context, including the forms of feedback, formative feedback, principles of effective feedback as well as feedback and self-regulated learning. It has been reported that PBL is one learning strategy through which students can plan, monitor and evaluate their own learning, all of which are principles of self-regulated learning (see section 2.4.4).

### **2.4.1 Forms of feedback**

Feedback can take on different forms. It can either be oral or written, and it can also be intrinsic or extrinsic. Oral feedback uses verbal communication between the feedback source and the recipient (Kluger and Van Dijk, 2010; Brookhart, 2008). In the context of this study, the feedback source is the tutor, while the recipient is the student. This type of feedback involves direct interaction between a student and the lecturer, either involving face to face interaction or using an on-line interface. Oral feedback can also be group-focused (collective) or individual focused (Hattie and Gan, 2011). Collective oral feedback happens when a tutor picks out aspects that are common to all students in the group, while individualized oral feedback is when feedback targets an individual student (Murdoch-Eaton, 2012b; Hattie and Gan, 2011). However, Abbasi et al. (2015) suggest that although oral feedback can be delivered to an individual, it is better to involve the whole group without individualizing, such that all students can learn from that feedback. The advantage of oral feedback lies in its flexibility, and any clarifications needed by the students are immediately given. This may also create a direct mentorship interaction between the student and the teacher (Murdoch-Eaton and Bowen, 2017; Johnson et al., 2016; Brookhart, 2008). In addition, instant oral feedback is useful when immediate action is required regarding a given task when ideas are still fresh within the recipient's mind (Johnson et al., 2016). However, there are some drawbacks with oral feedback if not properly handled. For example, the power differentials between a tutor and students may result into students fearing to question the feedback or to perhaps seek for clarification (Delva et al., 2013; Brookhart, 2008). Furthermore, students may not be able to capture in real-time what is being communicated as feedback, and hence lose out on some vital information (Hattie and Gan, 2011).

Feedback can also be written. In contrast to oral feedback, with written feedback, tutors often write down comments about students' completion of learning tasks. These comments are



received by the student either on paper or in soft copy using the computer (Tricio et al., 2016; Bermingham and Hodgson 2006). Crisp (2007) as well as Nicol (2011) suggest that the main advantage of written feedback is that, it allows the student to constantly refer to that feedback even in future, unlike in oral feedback which can be forgotten. Therefore, the written feedback becomes a point of future reference for the students. However, written feedback is often not immediate and the tutor has to think about what to provide and write as feedback (Mahboob, 2015; Petchpasert, 2012). This is likely to result in students just recalling those aspects upon which feedback is directed.

In the learning context, feedback may also be intrinsic. This means that the feedback messages originate from within an individual student (Burgess and Mellis, 2015; Koka and Hein 2003). Activities that promote this type of feedback may include: critical thinking, self-appraisal regarding a learning task and pondering over ideas, reflecting and evaluating various options to perform better.

Besides being intrinsic, extrinsic (external) feedback has also been reported (Burgess & Mellis, 2015). Extrinsic feedback can be from other students, thus peer to peer feedback, or from tutors. Peer to peer feedback is a form of student discussions or assessment where they offer feedback to each other about their learning tasks. Cartney (2010) reported that peer to peer feedback amongst students exposes them to various strategies and techniques of solving learning tasks since they learn from each other. This collaborative learning is important in a way that, students are less likely to fear each other, and there are reduced power differentials which can result in students questioning and clarifying each other's ideas. Orsmond et al. (2002) as well as Simpson and Clifton (2016) further suggest that peer to peer feedback may also expose students to various perspectives of constructing knowledge. When they reflect upon and comment on each other's tasks, students learn techniques of critiquing and appraising other people's work, as well as developing their own objective judgment (Ion et al., 2016; Ruegg, 2015; Shavelson, 2003). Extrinsic feedback from lecturers thus becomes the external standard upon which students evaluate themselves towards achieving the learning outcomes (Handley and Williams, 2011; Carless et al., 2011; Cuseo, 2009; McDonald and Boud, 2003).

In all forms of feedback, Hattie and Gan (2011) suggest that students should be actively involved in the process. Furthermore, feedback should be considered as an interactive dialogue

between two individuals, recommends Nicol and Boyle (2003). Achieving this requires students to be given an opportunity to actively engage with the tutors about the feedback received (Brehaut et al., 2016; Atack, 2003). This is even more likely to make students understand the feedback better. Parker and Baughan (2011) advise that every type of feedback should be constructed and delivered following good feedback practices in order for it to be highly effective. Yorke (2003) raised two fundamental questions about external feedback which may be significant for tutors: 1) Is the feedback that was generated of a good quality? 2) Is there a change in behavior as a result of the feedback delivered? This means that for feedback delivered to be effective, it must be turned into action that will lead to a change in the behavior of learners. In this regard, Boud (2000: p.158) cautions:

*The only way to tell if learning results from feedback is for students to make some kind of response to complete the feedback loop. This is one of the most often forgotten aspects of formative assessment. Unless students are able to use the feedback to produce improved work, through for example, re-doing the same assignment, neither they nor those giving the feedback will know that it has been effective.*

However, for feedback to be effective and promote learning, such feedback should fulfill certain criteria. In the following section, effective feedback in learning is explored more.

## **2.4.2 Effective feedback**

Although it has been suggested as an important driver of learning (Murdoch-Eaton and Bowen, 2017; Watling et al., 2014), feedback has to be effective and useful to achieve its intended objective (Omer and Abdularhim, 2017). In two landmark meta-analyses on feedback, it was reported that feedback can have debilitating effects on learning if not properly delivered (Kluger and DeNisi, 1996; Bangert-Drowns et al., 1991). For example, it is suggested in these studies that feedback which is controlling or too critical may reduce performance, or the provision of overall grades to students in relation to their peers, may demotivate some of the students (Brookhart, 2008; Kluger and DeNisi, 1998). Effective feedback needs to be related to the intended learning goals (Voyer et al., 2016; Hattie, 2009; Van de Ridder et al., 2008). In a training institution, it means that students should be aware of what lecturers expect them to achieve in a particular task or assignment. Feedback from lecturers will only become useful if it facilitates the students to identify for themselves whether they are on the right track and have

been facilitated to alter their learning to achieve further the next time. This therefore means that lecturers need to provide students with the expected outcomes well in advance.

Useful feedback should provide action points for the student (Murdoch-Eaton, 2012a; Housell, 2008). In order for feedback to be transformed into action, it needs to be concise and specific (Altmiller, 2016; Nicol and Macfarlane-Dick, 2006). Specificity of feedback relates to the level of information presented to the students when constructing feedback messages (Buchanan and Duncan 2006; Goodman et al., 2004). Simply telling the students that their performance was good or bad may not be effective feedback, advises Carless et al. (2011). It is useful for students to know exactly what was good and exactly what needs to be improved. Feedback should thus provide detail on what and how to improve rather than just highlighting what was correct or incorrect (Iskander, 2015; Orsmond et al., 2002; Pridemore and Klein, 1995). Students may view unspecific feedback as ineffective, and may not know how to respond to such feedback. Unspecific feedback may also lead to student frustration and hinder their learning progress (Rust, 2002; Higgins et al., 2001; Murdoch-Eaton and Levene, 1997; Kluger and DeNisi, 1996).

Much feedback may also be counter-productive as the students might get confused on what to do next. Molloy (2010) reported this as *cognitive load*. Cognitive load can be explained as that state when the students' working memory gets overloaded with much information that is being received at short intervals of time, thus blocking further learning (Leppink and Van den Heuvel, 2015; Molloy, 2010). In teaching practice therefore, facilitators need to change the practice in which feedback is framed, such that only key specific information regarding the learning task is delivered to the students (Krietek, 2015; Blanco-Blanco, 2013).

It has also been suggested that feedback should be framed in simple, clear and unambiguous language in order for the students to understand it (Hughes, 2011; Shute, 2008; Ivanic et al., 2000). Mory (2004) observes that even if feedback was specific and accurate to an expert, the student may not make sense of it, especially if it is highly technical. Students are in most cases novices and using simple language when giving them feedback is likely to be more rewarding (Glover and Brown, 2006; Weaver, 2006; Ivanic et al., 2000). Tutors are therefore urged to construct feedback in a manner that is likely to improve students' performance. It has been reported that, while feedback is significant in driving learning, some students may not be content with the feedback on their assignments (Bynumn, 2015; Carless, 2006). Orsmond and Stiles

(2002) explained this by reporting that language used in the feedback messages may be unclear and highly technical to the students which gets them confused. Effective feedback should involve constant discussions between lecturers and students as this allows students to consult in case they do not comprehend the feedback messages from their teachers (Hughes, 2011).

Timeliness of feedback is another important factor (Kuvaas et al., 2016). Molloy (2010) reported that one of the greatest challenges in education is perhaps untimely feedback. This does not mean that lecturers should rush through students' assignments since they must generate feedback as early as possible. Such practice might lead to poorly constructed feedback that is not likely to have any effect on learning. Sadler (2010) thus emphasizes that feedback should be timely, but not rushed. This essentially means that lecturers should generate feedback within a reasonable amount of time, so that it can have an impact on learning. It is not documented in literature regarding the reasonable amount of time within which to deliver feedback. Sadler (2010) advises that the time lag between the learning activity and feedback delivery should be relatively short so that students receive feedback when ideas and concepts are still fresh within their memory. The PBL tutorial group provides an ideal context that allows feedback delivery in real time without waiting for longer periods of time.

Useful feedback should also be continuous. Continuous feedback gives students adequate time and opportunities to use it and improve their learning (Telio et al., 2015; Poulos and Mahony, 2008). Summative assessments simply give feedback in form of grades when students have limited or no time at all to act and improve (Yorke, 2003). Continuous feedback throughout the learning cycle allows students to learn from mistakes in order to improve. The key issue is not making errors, but learning from those errors to become a better student. This is what on-going feedback to students is intended to achieve. It has been reported that useful feedback should also balance both students' strengths and weaknesses (Fong et al., 2016; Barnett and Coate, 2005; Brookhart, 2001). It may be highly tempting for lecturers to only stress the weak or negative comments when evaluating students' assignments. This unfortunately may affect the student (Al-Ghamdi, 2017). Dweck (2000) recommends that teachers should give both strengths and weaknesses because this allows the students to celebrate their successes and positively accept their weaknesses in order to act on them. This aspect of feedback targeting both strengths and weaknesses is explored further in section 2.4.3.1.

This section has highlighted key components of effective feedback from literature. Table 2.1 below summarizes these key components.

**Table 2.1: Components of effective feedback**

- |  |
|--|
| <ul style="list-style-type: none"> <li>• Feedback needs to be related to learning outcomes (Hattie, 2009)</li> <li>• Feedback should produce action points for the student (Murdoch-Eaton, 2012; Carless, 2011)</li> <li>• Feedback should be specific (Kluger &amp; DeNisi, 1998)</li> <li>• Feedback should be given in limited amounts to avoid cognitive load (Molloy, 2010)</li> <li>• Feedback should be in simple and clear language (Hughes, 2011)</li> <li>• Feedback should be timely before students forget concepts (Molloy, 2010)</li> <li>• Feedback should be continuous through the learning cycle, not just a one off (Poulos &amp; Mahony, 2008)</li> <li>• Feedback should balance both positive and negative aspects (Barnett &amp; Coate, 2005)</li> <li>• Feedback should provide detail on where improvement is needed (Kluger &amp; DeNisi, 1996)</li> <li>• Feedback should have the potential to stimulate reflection (Kolb, 1984, Shute, 2008)</li> </ul> |
|--|

From Table 2.1, it can be observed that effective feedback should enable students reflect upon their performance, identify strengths as well as gaps that need improvement.

### 2.4.3 Learning and feedback

From the studies on effective feedback principles (see section 2.4.2), it can be concluded that using a combination of different techniques when constructing and delivering feedback messages is likely to be more effective and have the desired impact on student learning. It has also been reported that gender may have an influence on feedback and learning. In one study, it was reported that there were differences in perceived feedback as a result of gender differences which impacted on eventual student learning (Havnes et al., 2012). In this study, Havnes et al. (2012) reported that girls were more critical than boys regarding the quality of feedback received. In yet another study, it was also reported that gender-differentiated feedback may influence teacher-student relations and how students react to such feedback (Morgan, 2001). Morgan (2001) reported that feedback that targeted to control males decreased their motivation to learn. This further illustrates that feedback that may be perceived as being directed towards a certain gender may have an influence on eventual learning. In another study that investigated feedback in learning, gender emerged as an important demographic variable that may affect perceptions and preferences for feedback (Rowe and Wood, 2008). In this study, these researchers reported that men and women differed in their preferences for feedback, with women

being more satisfied with the amount and type of feedback, valued the feedback more and seemed to view feedback as being important for emotional reasons compared to the men. Despite the fact that these findings have been reported outside a health sciences educational setting, they still offer insight into the potential influence of gender in feedback processes.

However, despite the above observation, one key implication for practice within a PBL tutorial context is that effective feedback has the potential of promoting self-regulated learning (see section 2.4.4), which is a key component of any PBL system. PBL also provides an opportunity to students to engage in experiential learning as new knowledge is built upon previous experiences (Hung, 2016; Blanco-Blanco, 2013). Therefore, effective feedback plays a role in experiential learning. Experiential learning has been explained as that type of learning where students build knowledge on previous learning incidents (Hung, 2016). In his cycle of experiential learning, Kolb (1984) suggested that effective feedback is a significant factor in promoting reflection and learning from day to day experiences. In this cycle, there are four steps which include: 1) Having an experience, 2) Reflective observation, 3) Abstract conceptualization, and 4) Active experimentation. Effective feedback is crucial in this cycle especially at the step of reflective observation since the feedback potentially triggers student reflection.

When students reflect on their learning to identify strengths and gaps, they are also essentially engaging in meta-cognition and meta-learning (Shute, 2008). There has been a plethora of literature on metacognition emphasizing its importance in learning (Whitebread et al., 2009; Efklides, 2006; Schraw et al., 2006; Martinez, 2006; Kuhn and Dean 2004; Kramarski and Mevarech, 2003; Kuhn, 2000; Hennessey, 1999; Schrawl, 1998). A synthesis of all this literature illustrates that metacognition relates to learners being aware of their own learning processes including knowledge about themselves as learners, what they are supposed to learn and knowing the factors that might impact on their performance. Feedback that empowers students to engage in meta-cognition and become aware of their own learning is called *formative feedback* (Mancuso-Murphy, 2007; Mory, 2004). The next section explores this aspect further.

### **2.4.3.1 Formative feedback and its role in student learning**

Following the early origins and subsequent adoption in education, the concept of formative feedback in teaching and learning has been extensively studied (Narciss and Huth, 2004; Mory, 2004; Kluger and DeNisi, 1996; Kulhavy and Wager, 1993; Bangert-Drowns et al., 1991; Kulhavy and Stock, 1989). This work alerts us to the fact that feedback has always been

considered an important aspect of the learning process. Other researchers have suggested that if delivered effectively, formative feedback can be a powerful driver of student learning (Murdoch-Eaton and Bowen, 2017; Dysthe, 2010; Cuseo 2009; Hattie and Timperley, 2007; Sommers, 2006; Eraut, 2006; Ferris 2003; Lensmire, 2000; Chan and Ahern, 1999; Raffini, 1993). A critical review of the aforementioned literature suggests that students should always be actively involved in the feedback process. There are several definitions of formative feedback from across different researchers. Formative feedback has been defined as information or responses provided by tutors to students aimed at identifying learning gaps and providing opportunities to students to address those gaps (Carless, 2006; Cheng et al., 2005).

According to Mancuso-Murphy (2007), formative feedback refers to information regarding the gap between present level of performance and desired level of performance, and that such feedback needs to be transformed into action by students. In order to transform this formative feedback into action, students need to be given sufficient time to act on the feedback, and use it to enhance their learning (Murdoch-Eaton and Bowen, 2017; Nicol and Macfarlane-Dick, 2006). This feedback is characterized by exchange of information amongst human beings in a problem-solving situation. In the context of this study, this can be viewed as the exchange of information between tutors and students, as well as between students and fellow students regarding performance during PBL tutorials. In health professions training, formative feedback has also been defined as:

*Specific information about the comparison between a trainees's observed performance and a standard, given with the intent to improve the trainee's performance* (Van de Ridder et al., 2008: 193).

In day to day human activities, this type of feedback is evident, where individuals either receive praise for doing well (positive feedback) or receive criticism for doing less well (negative feedback) (Van de Ridder et al., 2008). This concept of formative feedback has gained prominence in health professions education as part of teaching and learning, and it has been recognized as an important aspect in training (Murdoch-Eaton and Sargeant, 2012; Grandzol and Grandzol, 2006). Formative feedback is multi-dimensional, non- evaluative, timely, and specific, supports the learning process and is credible (Renting et al., 2016; Murdoch-Eaton, 2012; Leibowitz, 2012; Schwartz and White, 2000). Therefore, most definitions of formative feedback, and the premise from most of the research on feedback thus point to the fact that good



feedback significantly promotes learning if delivered effectively. Feedback provided in PBL is a form of formative feedback because it is aimed at guiding student learning. In this study, the concept of feedback has been used in a formative context.

Overall, one can deduce key implications for practice from the above descriptions of formative feedback. The major aim of formative feedback is to facilitate the learning process towards achieving the desired learning outcomes. Formative feedback requires active engagement of students to participate in identifying their achievements as well as gaps regarding a learning task (Renting et al., 2016; Watling et al., 2014; Carless et al., 2011; Paxton, 2007; Weaver, 2006). Contextualizing these observations to this study, tutor feedback in a PBL setting is formative in nature because it is aimed at identifying students' strengths and gaps and also to offer corrective actions to address the identified learning gaps. The manner in which such feedback is perceived by students may have implications on their learning (Song et al., 2017). For example, feedback perceived to be positive (such as recognizing achievements and identifying learning gaps using positive language) is likely to drive learning towards the desired direction (Van de Ridder et al., 2008; Hounsell, 2008), while feedback perceived to be negative (such as only pointing out weaknesses) is likely to hinder the learning process (Dysthe, 2010; Price et al., 2010).

Another role formative feedback plays in the learning process, is to promote deep learning and to facilitate students towards critical thinking from their dialogue with tutors (Kornegay et al., 2017; Orsmond, 2011; Bloxham and Campbell, 2010; Sadler, 2010; Hmelo-Silver and Barrows, 2006; Barnett and Coate, 2005; Ferris, 2003; Paas et al., 2003; Paxton 1997). Carless (2006) reported that the major aim of formative feedback should be to promote learning, and not to award quantitative marks. Sommers (2006) further suggests that tutors are ideally supposed to generate feedback that is likely to engage students into critical thinking. Critical thinking involves reflection, self and peer appraisal, analysis, evaluation and synthesis of ideas in order to formulate an action (Watling, 2014; Cuseo, 2009; Riordan and Loacker, 2009; Sommers, 2006). Feedback during PBL learning situations is arguably one way to facilitate critical thinking of students. Besides developing critical thinking ability, Buchanan and Duncan (2006) further suggest that feedback is helpful in guiding learners in the process of constructing knowledge and reflecting upon that knowledge in relation to their learning tasks. In their study, Buchanan and Duncan (2006) report that feedback promotes student's knowledge acquisition process and learning by:



- Helping the student identify areas that need special attention
- Promoting the student's ability to evaluate their performance
- Facilitating engagement with knowledge construction
- Motivating students to learn by pointing out areas worthy of exploration
- Enabling the student to map practice into existing knowledge or theoretical schema.

Other researchers have also concurred with the suggestions advanced by Buchanan and Duncan (2006) on the aspect of feedback acting as a motivating factor in student learning (Awofeso and Bamidele, 2017; Watling et al., 2014; Murphy-Shigematsu, 2014; Watling, 2013; Carless et al., 2011). This aspect can also be linked to motivation theory. In his motivational theory, Herzberg (1987) observed that factors that yield satisfaction in the work environment can motivate an individual to continue working. Such factors may include appreciation and recognition. On the contrary, factors that lead to dissatisfaction do not motivate individuals to perform, for example, reprimand. In the learning context, students need to be presented with factors that will keep their commitment to keep learning. Sadler (2010) has reported that trainees who are motivated in the learning environment are more likely to actively get involved in the learning process and work harder towards achieving the desired goals.

Eraut (2006) has reported factors that have the potential to motivate students to learn, key among these factors being feedback given to students. Eraut (2006) further advises that all facilitators need to exploit the potential of giving students regular feedback if those students are to become more motivated to adopt a deep approach toward learning. Although feedback has been recognized as a motivating factor for students to learn in the theoretical literature, Carless (2006) and Hattie (2009) observed that the delivery of feedback that is motivating remains a challenge for educators.

Higgins et al. (2001) suggest that students should be given time and opportunity to act on the feedback and address their learning gaps to the satisfaction of lecturers. This can be done by for example allowing the students to re-submit their assignments. In this way, the feedback system provides a mechanism for students to learn. In order to achieve this, the feedback should be related to students' previous knowledge, current strengths, identify current learning gaps and provide clues for corrective action (Offir et al., 2007). It can therefore be observed from the preceding discussion that formative feedback plays a key role in facilitating the learning process and promoting reflection as well as critical thinking. In the context of the PBL tutorial which is

the focus of this study, this is useful in empowering students to actively engage in the knowledge construction process, a key ingredient of self-regulated learning which is explored in the next section.

#### **2.4.4 Feedback and self-regulated learning**

Wirkala and Kuhn (2011) have reported that PBL provides an opportunity for students to become independent learners and direct their own learning, key tenets of self-regulated learning. Self-regulated learning is a form of learning where students monitor and evaluate their own learning activities (Pintrich, 2000). Hattie and Timperley (2007) suggested that there is a critical link between feedback and self-regulated learning. This linkage can perhaps be better contextualized from the perspective of self-regulated learning theory. Self-regulated Learning Theory (SLT), a psycho-cognitive theory was advanced by Pintrich (2000). This theory suggests that self-regulated activities influence learner achievements within an ideal learning environment. This theoretical framework comprises of four phases of self-regulation that include: 1) Forethought, planning and activation, 2) Monitoring, 3) Control and 4) Reaction and reflection. These phases of self-regulated learning are also evident within a PBL tutorial. The four phases are not linear, but any phase can occur at any one time during a learning activity, and phases might as well be interactive.

1. *Forethought, planning and activation*: In this phase, students set goals and activate prior knowledge through prompting and active questioning. Motivational processes may also be involved such as goal orientation and degree of liking of the learning activity. Behaviors involved in this phase may include time management by students, taking notes as well as planning for study. All these activities are directly evident within a tutorial process, for example setting learning issues and objectives as well as active discussion utilizing prior knowledge.
2. *Monitoring*: In this phase, students are attentive and aware of their actions and outcomes. The phase involves students' cognitive awareness of what they know or understand or what they do not understand. Learners also monitor tasks and effort and may adjust their efforts when the task is judged to be difficult.
3. *Control*: In this phase, students control their cognitions through meta-cognitive activities such as assessing progress and re-adjusting strategies. Students also engage in motivational control including boosting self-efficacy or confidence or engaging in positive talk or activities. This is evident in PBL learning situations where students may praise their discussion skills. In this phase, students may also engage in behavioral control

like persisting and seeking for additional help from resourceful people. Again, this is typical in a tutorial set up where students may occasionally seek help from a tutor or a more informed colleague.

4. *Reaction and reflection*: during this phase, students engage in various cognitive activities that may include judgments, self-evaluations and self-assessment. This can be regarded as a form of internal feedback. Motivational reactions in this phase may include learners feeling proud after successfully completing an activity. Contextual reflections may include evaluating the environment that supported the activity, for example availability of resources for learning.

Self-regulated learning theory emphasizes that with self-regulation, students: 1) should be active participants in the learning process, 2) have the potential to control key learning activities, 3) have goals against which to assess progress and 4) self-regulation mediates personal factors and performance outcomes (Zimmerman and Schunk, 2001). The theoretical framework by Pintrich (2000) is thus pertinent to this study because the concept of feedback provision within a PBL tutorial is aimed at supporting the student-centered learning approach which is largely driven by self-regulated learning activities by students.

Butler and Winne (1995) further strengthen Hattie and Timperley's linkage of feedback and self-regulation by positioning feedback as the catalyst behind self-regulated learning. Butler and Winne (1995) reported that self-regulated learners are those that possess skills of setting goals to acquire knowledge, discussing strategies to address those goals while monitoring, evaluating and reflecting upon the process, sometimes re-shaping their initial goals to achieve their objectives. During the process of self-regulation, Butler and Winne (1995: 246) conclude that "feedback is an inherent catalyst". In their study, they emphasize that self-regulated learners constantly engage in generating individual internal feedback regarding progress towards achieving the learning outcomes, analogous to self-evaluation in the tutorial process.

In cases of discrepancies, Butler and Winne (1995: 246) state that self-regulated learners seek feedback from external sources such as "peers' contributions in collaborative groups and teachers' remarks...". Pintrich (2000:453) further portrays self-regulation as an "active constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment". The concepts of self-regulation reported by Butler and Winne (1995) as well as Pintrich (2000) are evident in a typical PBL tutorial

process that often involves students doing self-evaluation, peer-to-peer feedback and feedback from the tutor/lecturer.

Zimmerman (2001) provides another dimension of self-regulated learning in relation to student achievement. This researcher suggests that students' achievements cannot only be attributed to abilities, but also skills to participate in self-regulated learning. Zimmerman and Schunk (2001) as well as Zimmerman (2008) further supplement that in self-regulated learning students should be active participants in learning rather than passive recipients of knowledge, tenets that are evident within a PBL tutorial. Other studies have also demonstrated that students' interest in a subject influences their self-regulated learning (Yang and Carless 2012; Pintrich and Zusho 2002). Pryor and Crossouard (2008) concur that self-regulation is vital to effective learning, and that feedback gives an opportunity to students to recognize strengths and weaknesses of their performance and identify gaps for improvement, thus practicing not only self-regulated learning, but also meta-cognition and meta-learning. Therefore, one can observe that feedback plays a vital role in promoting self-regulated learning where students use the feedback received to reflect upon their work and map out a way of reaching the desired learning goals.

Besides the above mentioned work on self-regulated learning and feedback, the literature is also replete with other models and frameworks of delivering feedback in order to promote self-regulated learning amongst students. Some examples include: Nicol's and Macfarlane-Dick's (2006) seven principles, Hounsell et al.'s (2006) feedback loop and even more recently, Mubuuke and Leibowitz's (2014) structured feedback guide and Orsmond et al. (2013) GOALS framework of feedback delivery. However, the most influential framework on feedback in higher education was arguably provided by Nicol and Macfarlane-Dick (2006) in their seven principles of good feedback. A key feature in all these seven principles was explicitly reported by Nicol (2009: 339) later on that:

*When students receive feedback from teachers they must engage in self-assessment if they are to use that information to improve academic performance: that is, they must decode the feedback message, internalize it and use it to make judgments about and modify their own work.*

Therefore, PBL tutors and students need to consider feedback as an opportunity to promote self-regulated learning, increasing students' ability to reflect, make judgments and act upon those judgments. Boud and Molly (2012) advise that teachers need to entice students to make judgments about their own learning processes, and that of their peers, and that students need opportunities during training to appraise their own performance, that of others and see how their appraisal compares with that of the teacher (in this case a PBL tutor). A PBL tutorial provides an excellent opportunity for facilitators to practice what Boud and Molly (2012) recommended. It provides students with an opportunity to get appraisal in form of feedback from the tutor. Orsmond et al. (2013) and Crisp (2007) also reported that students can enrich their self-regulation processes through a social learning context involving feedback delivery. Watling et al. (2013) and Pelgrim et al. (2012) supported this argument when they reported that credible and constructive feedback in learning goes beyond an individual learner's internal cognitive processes and involves the contextual setting as well. In their findings, they suggest that socio-cultural learning theories need to be emphasized when giving feedback. An application of socio-cultural theory to explain the contextual factors that may influence student response and use of feedback in a PBL tutorial setting has not been widely reported in health sciences education. This is a key gap that this study sought to address.

#### **2.4.5 Tutors and the feedback process**

It has been reported by various authors that the feedback delivery process can also be helpful to tutors (Husain and Khan, 2016; Orsmond et al., 2013; Boud, 2009). These authors suggest that tutors can potentially utilize the feedback process to create a mentorship relationship with their students during the process (Bowen et al., 2017; Laurillard, 2002). This allows the tutor to concentrate on the behavior of the student rather than the student him/herself. Such a relationship also reduces the gap between the student and the lecturer and may allow room for on-going consultations in case the student needs clarifications of the feedback. Such academic relationships are more likely to make feedback highly effective and rewarding to both teachers and students (Higgins et al., 2001; Ivanic et al., 2000).

Apart from feedback enabling students restructure their understanding and develop new knowledge constructs (Husain and Khan, 2016), generating feedback comments by PBL tutors involves actively listening, observing and participating in the students' tutorial discussions in order to make meaning of what is being discussed by students. This process may also facilitate

the tutor to reflect and possibly realign and modify his/her facilitation strategies to address the students' learning needs and achieve the learning outcomes (Kluger and Van Dijk, 2010). This therefore repositions the feedback process as not only driving learning, but also improving the facilitation of that learning process, and Hughes (2011) thus concluded that feedback is supposed to be integrated in routine teaching and learning activities. The likely implication of this is that continuous feedback enhances not only the learning process, but also the teaching methods (Van Dijk and Kluger, 2011; Carless, 2009; Barnett and Coate, 2005).

## 2.5 THEORETICAL PERSPECTIVES ON FEEDBACK

The subject of feedback has been extensively explored and theorized. The previous section has explored this subject as it is currently represented by various researchers. This section presents a synthesis of key theories on feedback that informed the study.

### 2.5.1 Hattie and Timperley's framework of feedback

Hattie and Timperley (2007) formulated a theoretical framework on feedback which can be applicable in a learning context. This framework deconstructs the concept of feedback into levels which are helpful when trying to make meaning of how students use feedback received. They observed four feedback levels which may occasionally overlap each other:

- **Personal Feedback:** This is about the student as an individual and it may express positive or negative evaluations of the individual. ....contains little task-related information and is rarely converted into more engagement, commitment to learning goals, enhanced self-efficacy, or understanding about the task (Hattie and Timperley, 2007: p. 96). The only way for such feedback to impact on learning is if it results in changes in students' effort, engagement, or feelings of efficacy in relation to the learning or to the strategies they use when they are attempting to understand tasks (Hattie and Timperley, 2007: p. 96). An example is when the lecturer writes comments praising the student's mastery of content in order to boost that student's confidence.
- **Feedback regarding the task:** This type of feedback focuses on the task and how well the student is tackling it, but does not focus on the individual. In order for it to be effective, it should direct students to the real process of attaining a desired goal. Such feedback should have the potential to enable students to reflect upon the task by making them to critically analyze ideas in the task, forming concepts and constructing their own

understanding of the learning task, thereby encouraging a deep approach to learning as also described by Husain and Khan (2016). Hattie and Timperley (2007: p. 102) state:

*...building cues and information regarding erroneous hypothesis and ideas, and then leads to the development of more effective and efficient strategies for processing and understanding.*

- **Feedback about processing of the task:** This is a type of feedback that gives students an opportunity to apply what they have learnt in a particular task to another situation, thereby extending the task beyond its original boundaries. It encourages students to *reject erroneous hypotheses and provides cues to directions for searching and strategizing* (Hattie and Timperley, 2007: p. 102). At this level, students use the constructed meanings of knowledge acquired at earlier levels to solve more challenging or untried tasks.
- **Feedback regarding self-regulation:** This is a type of feedback that facilitates students to monitor, evaluate, focus, plan, organize, manage and direct their own learning actions. These are key tenets of self-regulation in learning (see section 2.4.4 on feedback and self-regulated learning). It is at this level that lecturer feedback triggers the students to also engage in the process of self-assessment and self-critique about the learning task such as an assignment.

Self-regulation by the student is thus potentially promoted by the feedback received. In agreement with earlier work on self-regulation and feedback (see section 2.4.4), Hattie and Timperley (2007) also identified five aspects of student self-regulation that can lead to feedback being highly effective: 1) ability to self-assess 2) willingness to act on the feedback received 3) student confidence levels 4) acknowledgements of success or failure and 5) ability to seek guidance. This suggests that feedback from tutors needs to be constructed to not only allow students to internally reflect on the task and self-assess, but also seek further guidance from lecturers or peers to clarify their understanding.

## 2.5.2 Regulatory Focus Theory and feedback utilization

While Hattie and Timperley's theoretical framework focuses on feedback regarding the task and an individual, and links this to self-regulated learning, Regulatory Focus theory explores the subject of feedback from the perspective of an individual's point of focus or concentration. Regulatory Focus Theory (RFT), a cognitive theory, was advanced by Higgins (1997). It suggests that individuals can take on either a *promotion focus* (achievements, aspirations,



accomplishments, opportunities and goal attainment) or a *prevention focus* (safety, fulfilling mandatory responsibilities and avoiding threats to their achievements).

Individuals pursuing a promotion focus approach perceive goals as personal desires and aspirations to achieve and are motivated by achievements. Such individuals employ strategies to achieve positive results which are characterized by emotional attachments when positive outcomes are realized. To them, achieving the desired outcomes is a personal fulfillment. In the promotion focus orientation, success means achieving positive outcomes and failure means absence of positive outcomes. They therefore focus on positives. Practically, promotion focused individuals view tasks as desires, wants and aspirations.

People pursuing prevention focus view targets as responsibilities or punishments and struggle to achieve those targets to ensure their safety. They are motivated by accomplishing those targets to avoid pain or being punished. They complete tasks in order to ensure their safety and they view such tasks as mandatory duties. Individuals with prevention focus orientation view success as the absence of negative outcomes and failure means presence of negative outcomes. Such individuals are thus likely to respond to feedback so as to avoid any negative consequences that may arise.

In learning, students' individual differences and perceptions are likely to determine the way in which they respond to tutor feedback. Some students may view learning tasks as routine obligations which must be accomplished in order for them to progress and appease their tutors. Such students may only be concerned with achieving a pass mark and might want the tutor feedback to point out only negative issues that are likely to prevent them from achieving the pass mark. These would fall under the *prevention focus* and are more likely to be motivated by negative comments in relation to their performance. Students under the *promotion focus* orientation are likely to view assignments as opportunities for them to achieve their desires. To such students, Higgins (1997) argues that feedback might not only help them achieve a pass mark, but also likely to promote a deep learning approach for them and achieve their personal learning desires.

From its original application by Higgins (1997), Regulatory Focus Theory has subsequently been applied in medical education to explain students' utilization of feedback received (Watling



et al., 2012; Van Dijk and Kluger, 2011; Kluger and Van Dijk, 2010). Although the theory offers insights into how different students would respond to different types of feedback, it does have some drawbacks. First, the theory is largely cognitive and does not emphasize the aspect of feedback in relation to student learning goals. In addition, the theory does not mention the dynamics of a social learning group such as the PBL tutorial group and thus ignores the context in which feedback is taking place. In this context, students' response to feedback is likely to be influenced by social factors outside the cognitive domain as well as task difficulty, which this theory does not address.

### 2.5.3 Feedback Interventions Theory

Unlike the Regulatory Focus theory that does not emphasize the aspect of learning goals and task difficulty when delivering feedback, the Feedback Interventions theory speaks to these issues. Feedback Interventions Theory (FIT) was described by Kluger and DeNisi (1996). In this theory, which is based on extensive literature review and meta-analysis of experimental findings, they report on the effects of feedback interventions on performance. The theory suggests that feedback interventions can change the position of a student among three levels of control: 1) task-learning, 2) task-motivation, and 3) meta-task processes (Figure 2.2). This theory offers a broad approach in investigating feedback intervention effects that include feedback moderators like praise, verbal/written feedback, task difficulty, timing and type of task.



**Figure 2.2: Abstract hierarchy of processing feedback (Kluger & DeNisi, 1996)**

The theory suggests that the lower the feedback induced position of attention is in the abstract hierarchy of processing feedback, the stronger the benefit (Kluger and DeNisi, 1996). For example, feedback that focuses the student on the task aspects (lower level), promotes learning compared to feedback that draws attention to self (upper level). FIT has five basic arguments: 1) learner behavior is controlled by comparing feedback to goals, 2) goals need to be organized in a

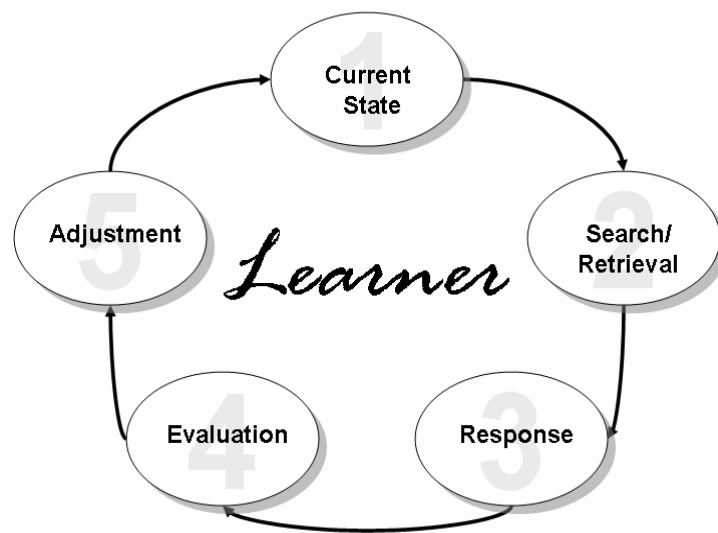
hierarchy, 3) student attention is limited and therefore feedback should point out discrepancies between actual performance and desired performance, 4) student attention is always directed to a moderate level of the hierarchy, and 5) feedback interventions change the position of attention thus affecting behavior. These observations are interdependent.

From a critical review of this theory on feedback, it appears that the implication for practice is that feedback interventions can be both useful and detrimental depending on circumstances. Teachers/Facilitators should thus know which feedback interventions to use to increase performance depending on different circumstances. There is also need to set goals of the task in some form of hierarchy and feedback interventions should target a specific goal within the hierarchy.

#### **2.5.4 The Five-Stage theoretical model on feedback**

In the previous Feedback Interventions theory, the aspects of organizing goals for feedback, in a hierarchy were presented. The Five-stage theoretical model on feedback expands on this concept by adding another aspect of reflection and use of prior knowledge triggered by feedback. The Five-Stage theoretical model (Figure 2.3) on feedback was suggested by Bangert-Drowns et al. (1991) in a seminal meta-analysis of forty (40) studies on feedback. They examined variables like feedback type, timing and rates of errors regarding the respective effect sizes. Their findings outline the cognitive and behavioral operations that occur in learning. The basic notion of this model is that in order to influence behavior, the student should be able to monitor physical changes brought about by that particular behavior i.e. students change cognitive operations and behavior by adopting new information and match results of the behavior to their expectations about performance. Bangert-Drowns et al. (1991: 214) state that:

*Any theory that depicts learning as a process of mutual influence between learners and their environments must involve feedback implicitly or explicitly because, without feedback, mutual influence is by definition impossible. Hence, the feedback construct appears often as an essential element of theories of learning and instruction.*



**Figure 2.3: Five-Stage learner model during a feedback cycle (Bangert-Drowns et al., 1991)**

This theory emphasizes that effective learning occurs in the presence of feedback, either delivered explicitly or implicitly. The ideas in this theory were echoed by Dempsey et al. (1993) who emphasize the aspect of mindfulness, which is *a reflective process in which the learner explores situational cues and underlying meanings relevant to the task involved* (Dempsey et al., 1993: 38).

The Five-Stage Model of the learner receiving feedback is briefly presented below as described by Bangert-Drowns et al. (1991: 21):

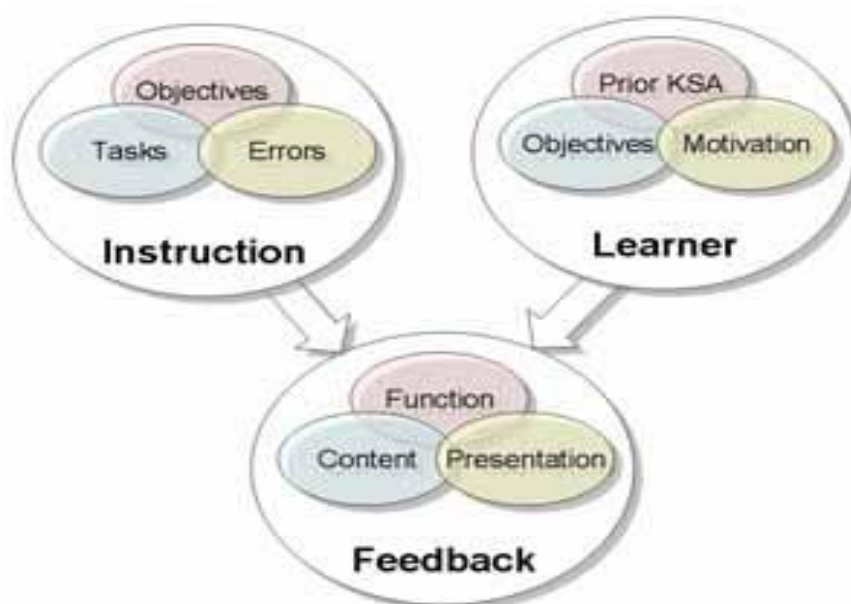
- Current state of the student: Key features in this state include passion, motivation, interest, goal orientation and relevant prior knowledge.
- Search/Retrieval state: Cognitive mechanisms are stimulated by a learning question/task where the student retrieves prior knowledge stored in memory to tackle the task
- Response state: Here, the student makes a response to the question/task and has some expectation of feedback regarding performance on the task.
- Evaluation state: The student evaluates the response in relation to feedback received. The evaluation depends on the nature of the expectations of feedback. For example, if a student was confident about the correctness of his/her response and the feedback received confirmed the same, the retrieval pathway will be strengthened or not altered. If however the feedback points to the incorrectness of the student's response, the student is likely to seek to understand why this is the case.
- Adjustment state: In this state, the student makes adjustments to his/her knowledge, self-confidence, passion, interests, motivation and goals as a result of the evaluation. With

new experiences, the adjusted state then becomes the current state and the cycle continues.

Therefore, this theory emphasizes the aspect of reflection where students utilize feedback to think about the task, activate prior knowledge and then try to solve the task.

### 2.5.5 Narciss and Huth conceptual framework on formative feedback

Formative feedback and its role in facilitating student learning has already been discussed (see section 2.4.3.1). When further exploring this concept, Narciss and Huth (2004) theorise a conceptual framework using a different approach. Their design of the framework was based on cognitive task and error analyses. They examined the impact of feedback on learning and motivation using two computer-based experiments. Overall, their findings suggest that systematically designed formative feedback had a positive effect on learning and motivation. This framework further suggests that designing effective formative feedback needs to take into consideration the learning context as well as the learner characteristics in order for it to be effective for complex learning tasks. This is in resonance with what was suggested in the Feedback Interventions Theory (see section 2.5.3). In other words, there are various factors that interact with feedback to influence the learning process. The conceptual framework is illustrated in Figure 2.4.



**Figure 2.4: Factors interacting with feedback to influence learning (Narciss & Huth, 2004)**

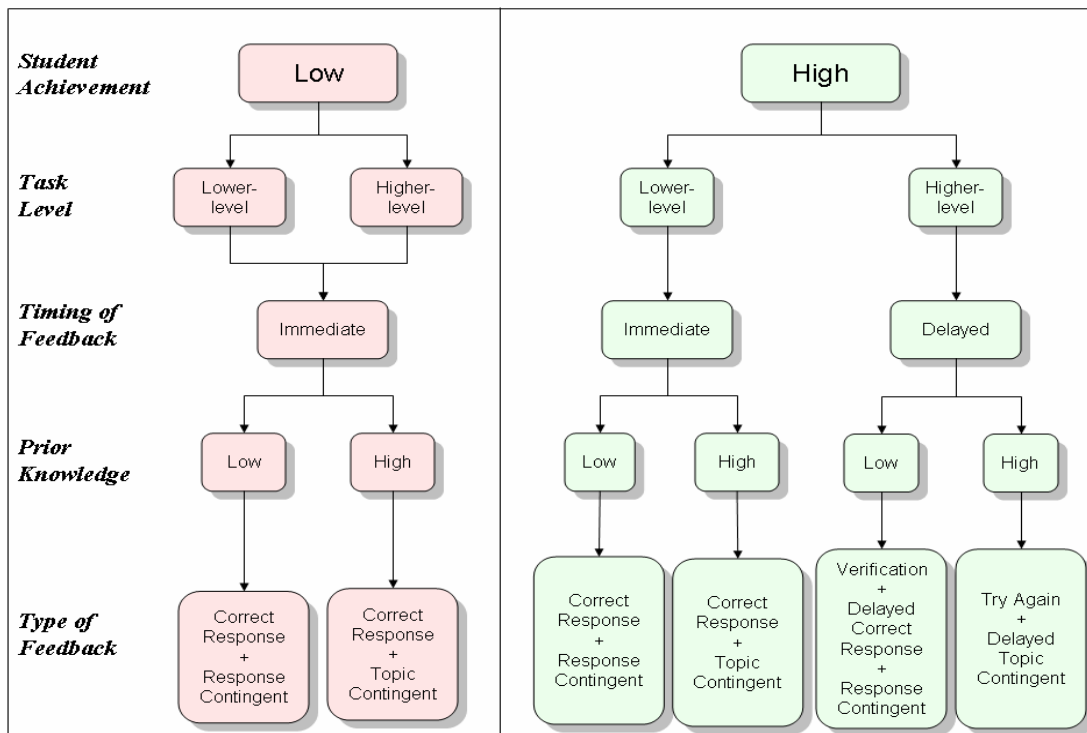
The framework consists of three key factors:

- *Feedback*: This consists of three major elements: 1) feedback content (i.e. evaluation like verification, correctness/incorrectness of responses, informative aspects like hints, analogies, worked cases etc.), 2) feedback function (i.e. cognitive, meta-cognitive and motivational), and 3) presentation of feedback (i.e. timing, clarity, specificity, schedule etc.)
- *Instruction*: The instruction factor also has three major elements: 1) expected learning goals/outcomes, 2) learning tasks such as written problems/cases in a PBL tutorial, and 3) errors and obstacles such as incorrect strategies.
- *Learner*: Concerning the learner, information relevant to feedback design includes prior knowledge, skills, abilities and motivation to learn.

Although this theory mentions the aspect of feedback and the learning context, the three key ingredients of the theory as seen in Fig.3 (i.e. learner, feedback and instruction) seem to be largely cognitive. The socio-context and related social factors which might come into play to influence the feedback are not evident in this theory.

### **2.5.6 Mason and Bruning theoretical framework on feedback**

As already indicated that the aspect of feedback has been researched and explored using many different approaches, Mason and Bruning (2001) also present another perspective on the subject. They reviewed feedback literature on computer-based instruction systems and suggested a theoretical framework that can assist instructors (Figure 2.5).



**Figure 2.5: Feedback variables for decision making in computer-based instruction**  
(Mason & Bruning, 2001)

Their framework is based on feedback types and levels of elaboration based on the students' achievement level, task difficulty, timing of the feedback and level of the student prior knowledge. The framework suggests that immediate feedback to students with low levels of achievement in the context of either simple or difficult task is superior to delayed feedback, while delayed feedback is recommended for students with high achievement levels especially for difficult tasks. Although this theory is supported by some key literature that Mason and Bruning reviewed such as the works of Pridemore and Klein (1995), it fails to explicitly illustrate how immediate feedback would be recommended for students with lower achievement levels while delayed feedback would be suitable for students with high achievement levels. The theory does not also explicitly define what *student achievement levels* exactly refer to.

In summary, this section has explained some key theories that have been previously suggested to explain the subject of feedback using different approaches. These theories guided me in this study. In table 2.2 below, these theories with the respective key messages in each theory are summarized.

**Table 2.2: Summary of the key theories on feedback**

Feedback Theory	Key issues
Hattie and Timperley theoretical framework (2007)	Four levels of feedback emphasized namely: -Personal feedback (focuses on individual) -Task-related feedback (focuses on task accomplished) -Process-related feedback (focuses on process & application in other scenarios) -Feedback on self-regulation (focuses on developing an independent learner who monitors, evaluates, manages and plans their own learning)
Regulatory Focus Theory (Higgins, 1997)	This theory points out two types of individuals depending on the way they view feedback: -Promotion focus individuals: Motivated by achievements and personal desires. Students under this focus would use feedback to achieve learning goals, learn deeply and understand tasks -Prevention focus individuals: Motivated by achieving set targets. Students under this focus would use feedback to pass the task rather than learn deeply.
Feedback Interventions Theory (Kluger and DeNisi, 1996)	-Emphasizes feedback in relation to learning goals and task difficulty. -Goals for which feedback is directed need to be organized in a hierarchy -Feedback interventions need to focus on task-related aspects to achieve greater output -Feedback interventions such as praise or reprimand can be both useful as well as detrimental.
Five-stage Theory on feedback (Bangert-Drowns et al. (1991)	-Learning occurs in the presence of feedback -Feedback stimulates learner reflection -Feedback stimulates use of prior knowledge by the learner -Feedback responses stimulate evaluative skills on the side of learners.
Narcis and Huth feedback framework (2004)	-Feedback has a positive effect on motivation to learning -Feedback needs to take into account the learning context -Feedback needs to take into account the learner characteristics
Mason and Brunning feedback Theory (2001)	-Approaches feedback using computer-based instruction -Immediate feedback is superior to students with low-levels of achievement -Delayed feedback is better for students with high levels of achievement

The theories discussed above speak to the fact that feedback seems to be a fundamental aspect of any learning process, and that the feedback process should actively engage the learners to reflect upon their prior knowledge and also relate the feedback to learning goals. There is also need to differentiate between feedback related to an individual learner as well as feedback related to a learning task.

## **2.6 ACTIVITY THEORY: AN INTERPRETATION LENS FOR THE STUDY**

The theories presented in section 2.5 are generally psycho-cognitive in nature, in that they relate feedback to students' internal cognitive processes. However, a key gap that this study sought to address was to apply socio-cultural theory to explain students' experiences, response to and use of feedback PBL tutorial context. A PBL tutorial group is a small community of learning and therefore feedback that occurs in such a community needs to take into account the socio-cultural context in which learning is situated. Therefore, although the above discussed theories partly informed the study, Activity Theory (AT) laid the foundation for explaining and synthesizing the findings from the study as later explained in Chapter 6.

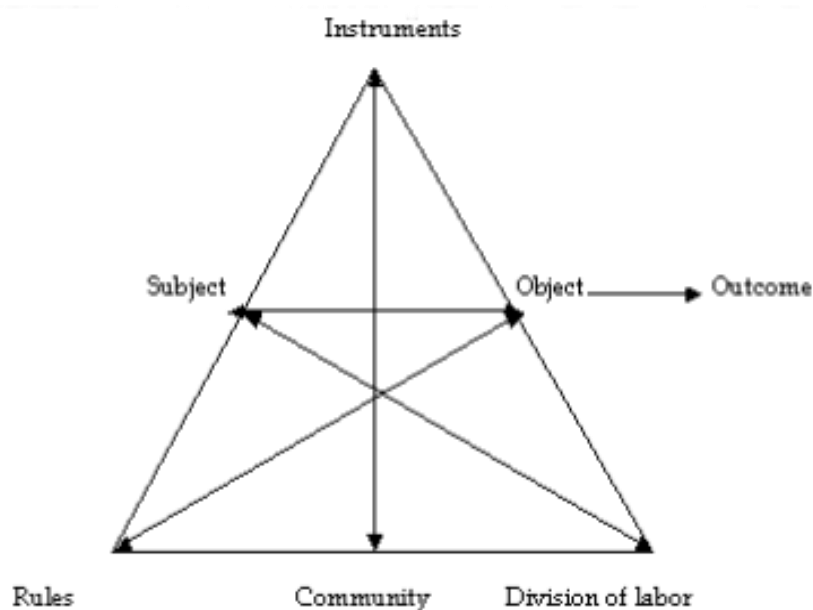
Activity Theory originated from the socio-cultural tradition in Russian psychology whose key concept is the "activity", which is an interaction between individuals (subjects) and the world (object). Activity Theory was originally developed from the works of Vygotski and Leontiev (Verenikina, 2001; Leontiev, 1978) and subsequently slightly modified by Engestrom (1987). The fulcrum of this theory is 'the activity' which refers to a purposeful and transformative interaction between people (subjects) and the world (objects). Activity cannot thus be separated from the context in which it occurs. In the context of this study, this activity is the feedback delivery process. The original Activity Theory framework is broken into individual components such as subject, tools and object. In the framework, the subject refers to the individual being studied, the object is the activity itself and tools refer to means or devices that help in performing the activity (Hasan, 1998). To contextualize this to the present study, the subject would refer to students and tutors, the object would relate to the feedback while the tools would refer to any means that would facilitate delivery of effective feedback in a PBL tutorial context. Activity Theory should not be viewed as a methodology, but rather a theoretical framework that provides an important platform for analyzing, explaining and interpreting activities and interaction (Kuutti, 1996). The theory provides a deeper understanding of how individuals



perform tasks together in a community, being assisted by mediation tools where team work and socially constructed information is the goal (Crawford and Hasan 2006).

Although Activity Theory was originally developed from the works of Vygotski and Leontiev, there were subsequent modifications to the framework made by Engestrom (1987), an educational researcher, though maintaining the original components. The modification by Engestrom (1987) to the original framework provides an addition of three other components namely: *rules*, *division of labour* and the notion of *community*. The activity is governed by rules and there is division of labour amongst members carrying out the activity, aspects that are present within a PBL tutorial.

The rules in the modified framework refer to a set of conditions/procedures that guide individuals on how to act when performing an activity. The division of labour provides for a distribution of responsibilities to individuals within a team during an activity while the notion of community refers to the setting in which a group or groups of teams carrying out an activity are situated. In this study for example, rules would refer to guidelines needed during the feedback process, division of labour would relate to the roles of the tutors and students in the feedback process and the idea of community would relate to the PBL setting in which the feedback process (i.e. activity) takes place. The activity theory framework is illustrated in Figure 2.6.



**Figure 2.6: Framework of Activity Theroretical System (Engestrom, 1987)**

It can be observed from Figure 2.6 that any activity is organized into components that include: subjects (individuals being studied that are engaged in the activity e.g. the tutor and students in a tutorial), *object* (raw material or problem area to which activity is directed e.g. feedback). Object of the activity could either be physical or a mental construct and is always oriented towards achieving particular outcomes with the assistance of mediating tools or instruments. Thus *instruments/tools* in the framework are mediation instruments for executing the activity. Instruments could be physical or mental artefacts. In a tutorial group for example, instruments for executing feedback delivery could be effective use of language and signs or even reflections.

All these are geared towards a purpose to which members in a community of practice direct their activity (e.g. in a tutorial, the activity of feedback delivery is directed towards addressing learning gaps and thus facilitate effective learning). Thus it can be argued that the activity theory framework is applicable in a social learning environment such as a PBL tutorial. The relationship between the individual and their environment is thus considered through the component of *community*.

The notion of activity means that an individual (i.e. subject) must act on something (object) and the activity should be directed at someone, so there must be people towards whom it is directed. In order to execute an activity, there must be a form of mediation through which one acts. The component of "object-orientedness" in Activity Theory is a potentially confusing one. Although one would take object to mean the physical structures with which human beings interact when executing a specific activity, Leontiev (1978) emphasizes that the notion of object in activity theory framework should not be limited to physical, chemical or biological nature of things, and that socially determined properties of things in form of artifacts are also objective properties that can be studied with objective methods. In this study for example, the component that was considered as the object was the feedback.

While psycho-cognitive theories emphasize the idea of internal mental processes, Activity Theory demonstrates that internal mental processes cannot be fully studied and understood separately without putting into consideration the external factors. In most situations, the external occurrences do influence the internal mental processes. The emphasis on the influence of contextual factors and the environment in which an activity takes place as postulated in Activity Theory explains the importance of having tools for mediation when carrying out the activity.

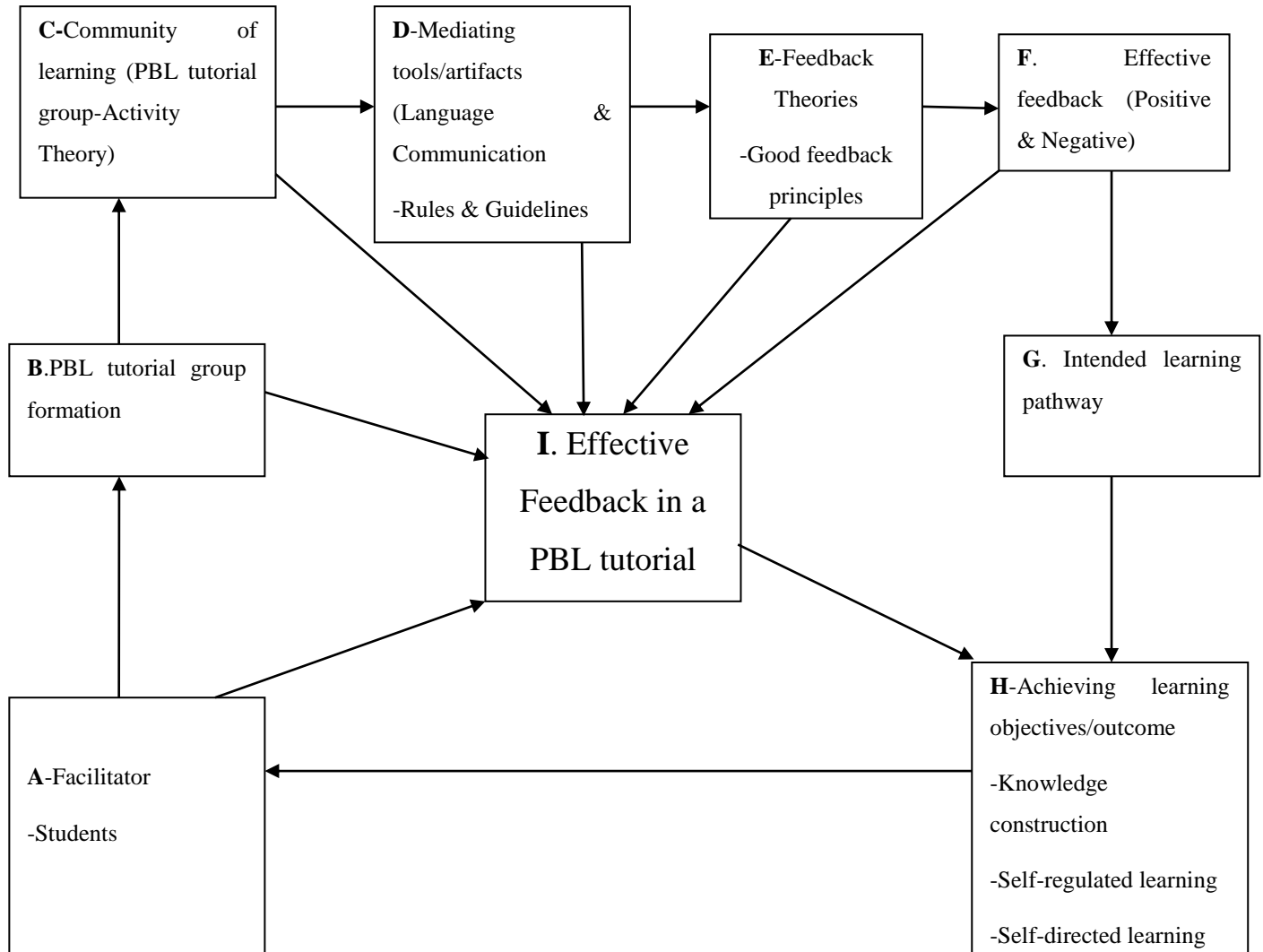
Vygotsky reports two types of tools namely: technical tools and the psychological tools. Technical tools are used to manipulate physical objects. However, psychological tools are used by individuals to influence other people's actions and behaviors. Tools are also not used in a vacuum, but are influenced by the cultural context where the activity occurs. In a PBL tutorial context where feedback is oral in nature, an example of a tool would be language used to communicate the feedback to students.

The relationship between subject and community is mediated by *rules* and the relationship between object and community is mediated by the *division of labour*, aspects that are evidently present in the socio-cultural learning environment of a PBL tutorial. The above key assumptions of activity theory are in resonance with assumptions that underlie socio-cultural learning interactions i.e. the social nature of the human mind and the inseparability of the human mind, activity and context. Therefore, Activity Theory should be viewed as a social learning theory. The features of Activity Theory can also be traced through other social learning theories such as Situated learning Theory where an awareness of the context in which a learning activity takes place is very significant (Lave and Wenger, 1990).

From its initial inception, Activity Theory has been widely applied in various fields such as psychology, management, education, cultural studies, organizational learning and information systems, all fields that involve human activity (Zurita and Nussbaum, 2007; Liaw, et al., 2007; Crawford and Hasan, 2006; Hakkinen and Korpela, 2006; Scanlon and Issroff, 2005). In a higher educational context, Scanlon and Issroff (2005) provide a good example of the application of Activity Theory. Their study investigated the experiences of students and lecturers in the use of technology in teaching and learning. Applying Activity Theory, they used a learning technology as a tool in an institution where the students were the subjects, the object was the purpose of the task and the outcome was more student learning. In this study, they concluded that Activity Theory provided a means of observing patterns in the activity related to achieving goals and outcomes. In another study, Liaw et al. (2007) applied Activity Theory to investigate students' attitudes towards e-learning. In this study, they demonstrated that Activity Theory is useful in understanding and solving problems involving e-learning environments. However, the application of Activity Theory has been less reported in health sciences education, and specifically within the area of the feedback process in a PBL tutorial group context, a gap this study set out to address.

## 2.7 CONCEPTUAL FRAMEWORK

The conceptual framework as it has emerged from the literature described in this chapter is illustrated below and thereafter explained.



The conceptual framework consists of nine inter-related elements (i.e. A, B, C, D, E, F, G, H & I). The framework illustrates that achieving effective feedback within a PBL tutorial group setting is the central aspect of this study (I), thus taking on center stage. There are various factors that may contribute to the realization of this which are the basic concepts in this study. First are the students and the tutor who must be present to form the PBL group (A). The next step is the formation of the actual functional PBL tutorial group which in this study is the context where the feedback process occurs (B). The formed PBL group then becomes the community of learning (C). In this study, it is this community that will experience the feedback phenomenon, and an interpretation of their experiences of feedback will be guided by principles

of Activity Theory which has already been discussed in chapter two section 2.6. Members of the PBL community of learning then utilize mediating factors as tools (e.g. language) to act on the feedback (D).

Feedback delivered should be governed by established theories and related literature (E) on feedback practice which have also been already discussed in this chapter. The application of feedback theories results into highly effective feedback (F) which directs students along the intended learning pathway or direction (G). The intended learning pathway constitutes various aspects such as achieving learning outcomes, engaging in self-directed and self-regulated learning (H). Therefore, all the concepts illustrated in the framework contribute to effective feedback within a PBL tutorial environment and are further discussed in the chapters that follow. The next chapter presents the research methodology that was followed to execute the study.

## 2.8 CONCLUSION

Based on literature on feedback, one can identify key broad characteristics of effective feedback in the learning context. Effective feedback:

- Promotes reflective and self-regulated learning skills amongst students;
- Enhances tutor-student and student-student dialogues;
- Clarifies ideal expected performance;
- Avails students with opportunities to identify learning gaps and how to address them;
- Motivates students to learn, and
- Informs tutors whether there is a need to modify delivery methods.

Although there is a wealth of literature on feedback in education reporting how students use that feedback to facilitate their learning, most of the reported accounts have been largely informed by cognitive theory. The application of socio-cultural theory in addition to cognitive theory to explain students' experiences and use of feedback in a PBL tutorial has received less attention especially in health sciences education. Additionally, PBL literature reports that tutor feedback in a tutorial group is key in guiding student learning, however, most studies on PBL have limited documentation on how the recipients of this feedback, who are the students, experience this feedback and what influences them to use that feedback.

Particularly, published contributions from within African Medical Schools around this subject are still few; despite the fact that many of these medical schools have adopted PBL tutorial models from outside Africa. Sustaining such PBL tutorial models requires local solutions from within African academics. Therefore, this study set out to address the above gaps specifically focusing on facilitator feedback within a PBL tutorial and what might influence students' receipt, experience and use of such feedback. Hopefully, the findings herein will make a contribution to improve health sciences education in Africa and probably beyond.

# **CHAPTER 3**

## **RESEARCH METHODOLOGY**

### **3.1 INTRODUCTION**

The purpose of this study was to explore students' experiences of and use of feedback received in a PBL tutorial. The over-arching research question was: How do students experience and respond to tutor feedback received during PBL tutorials? The study was qualitative in nature following an interpretive paradigm in which an in-depth exploration of the experiences of the students was conducted, supplemented with views from tutors. A qualitative approach was thus best suited to conduct such a study of an exploratory nature and generate data needed to address the research questions and study objectives (see sections 1.7 and 1.8). The problem that was investigated has been described in Chapter 1 (see section 1.2).

This chapter commences with a discussion of the qualitative research design and its usage in this study. The chapter also describes the research paradigm that was followed. The case study approach that was specifically used in the study is also described. A further discussion of the specific components of the study follows including: participants, sampling, data generation methods, analysis process, research steps taken and quality assurance issues addressed. The chapter then describes my position in the whole process, methodological limitations and ethical issues that were considered.

### **3.2 RESEARCH DESIGN**

This study adopted an exploratory and interpretive qualitative research design, and specifically used a case study approach. The study involved students and tutors. Students involved in the study were from different health professional disciplines and were drawn from five different PBL tutorial groups. The tutors involved also belong to different health professions. The objectives of the study were to explore students' experiences of tutor feedback and the feedback process, explore ways in which students use the feedback and also to determine factors that influence the use of such feedback.

### 3.2.1 Qualitative research design

Generally, research can either be quantitative or qualitative or both (Slevitch, 2011). Quantitative research follows an empirico-analytical paradigm, highly embedded in positivism. It mainly involves numbers and statistical tests, and the results from such research can typically be generalized to larger populations (Slevitch, 2011; Lucas et al., 2007). Thus one would argue that the philosophical basis of quantitative research is that there exists a real world that a researcher needs to discover using quantitative methodology (Cohen, Manion and Morrison, 2000). With this orientation, one can also observe that knowledge is objective and easily measurable. However, qualitative research focuses on exploring a phenomena in depth from the experiences and uniqueness of individuals, rather than generalizing findings (Morrison et al., 2016; Merriam, 2009; O'Donnell et al., 2007; Braun and Clarke, 2006; Dixon-Woods et al., 2006; Farzanfar, 2005; Stake, 2000; Stake, 1995; Patton, 1987). With qualitative research, there cannot be an objective reality, but reality is simply a human construction of everyday experiences (Hense and McFerran, 2016; Mutch, 2005).

Qualitative research is deeply rooted in the concern for developing a deeper understanding of a phenomenon and constructing meaning that individuals attach to their experiences (Bogdan and Biklen, 2003; Denzin and Lincoln, 2003; Jones, 2002; Esterberg, 2002). Qualitative data generated from research thus aims at illuminating and understanding the intensely rich experiences of people and the context in which they live (Polit and Beck, 2009; O'Donnell et al., 2007; Johnson et al., 2007; Jones et al., 2006). Qualitative research can also be compared to the genre of *jazz music* (Oldfather and West, 1994). This metaphor is applicable when one considers the many elements of jazz and how these are reflected in qualitative research.

*Those who experience jazz firsthand (as players or members of a live audience) are those most deeply affected. Similarly, those who participate directly in qualitative research, who are physically, intellectually, and emotionally present in the research context, and who hear the interplay of voices for themselves are those for whom the understandings are most vivid and meaningful* (Oldfather and West, 1994: 23).

Thus in this study, I engaged the students who were the recipients of feedback as well as the tutors who were the source of that feedback in a PBL tutorial to share their experiences. Components of qualitative research designs are also connected and interact. In other words,



steps taken to conduct such research are dialectical and iterative. For example, generation of data can proceed as analysis also proceeds while data generation techniques and instruments can be constantly modified or reviewed during the process (Maxwell, 2005). This can be compared to the rubber band of Maxwell (2005: 6):

*This 'rubber band' metaphor portrays a qualitative design as something with considerable flexibility, but in which there are constraints imposed by the different parts on one another, constraints which, if violated, make the design ineffective.*

The researcher thus needs to allow flexibility during the process in order to collect the right information needed. In this study, I sought to be flexible through the research process during data generation and analysis. For example this was achieved by modifying interviewing and probing techniques as well as moving back and forth during data analysis in an iterative process. However, I still followed key steps and guiding questions that permitted the generation of rich information from participants within the defined boundaries of the case.

As mentioned earlier in this section, qualitative research designs allow exploration of phenomena. In this study, I explored health science students' experiences of receiving and using tutor feedback during PBL tutorials. I also explored experiences of the tutors regarding the feedback given to students in order to gain more understanding. To achieve this, I used constant questioning and observations which may be difficult to do with conventional empirico-analytical positivist methodologies (Jones et al., 2006). Such feelings and thought processes can be elicited through participants sharing and describing their lived experiences. Furthermore, qualitative research designs are recommended for studying phenomena not only in their natural settings (Denzin and Lincoln, 2003; Crotty, 1998), but also when trying to understand processes within a particular context (Esterberg, 2002; Bryman, 2001).

In addition, qualitative research emphasizes that the researcher plays an important role in the research process during data generation, analysis and interpretation (Flyvbjerg, 2006; Creswell, 2005; Strauss and Corbin, 1998). In this study, I was key in designing the data generation instruments, generating the data and interpreting it. I was thus physically and intellectually present in the research field to personally hear the voices as well as observe behaviors of the participants who were experiencing the phenomenon of feedback. Later on in this chapter, my role is discussed (see section 3.4.4).

### **3.2.2 Philosophical underpinnings**

This study was informed by the principles of interpretivism and constructivism. Interpretivism was the over-arching research paradigm that guided the study while constructivism provided a theoretical basis for this research paradigm. In the following sections, these are further discussed.

#### **3.2.2.1 Interpretivism**

Interpretivism is a research paradigm that presents a particular world view of the meaning of reality (Thanh and Thanh, 2015; Chowdhury, 2014; O'Donoghue, 2006). This view emphasizes that reality is merely experienced, and a researcher under this paradigm contends that people in the community construct and interpret experiences differently depending on their interactions with each other and with a larger community (McMillan, 2015). A researcher who operates in this paradigm therefore requires an understanding of the social world in which people live (Henning, 2004). The notion of social world relates to the context in which an experience occurs, the relationships between people in that context and the organization structure in that community (Henning, 2004). Understanding this social world enables a researcher operating under this paradigm to discover the different meanings and interpretations of the same experience from different people. In other words, reality cannot be detached from the context in which it occurs. Interpretivism therefore emphasizes that people may experience and interpret a similar phenomenon differently and seeks to find out the ways in which people in a given context understand and interpret the same experiences they may be going through (Henning, 2004). This understanding is important in the context of this study because, though students may be experiencing the same aspects of tutor feedback within a PBL tutorial context, they may receive and respond to that feedback differently.

Interpretivism can be seen to illustrate that meaning and reality are not objective, but depend on subjective experiences of people in a particular context. With interpretivism, the researcher is just a vehicle that reveals that reality to the rest of the world (Cavana et al., 2001). Under this orientation, the researcher's interpretation of people's reality is very vital which may bring subjectivity to the fore. However, such subjectivity is backed up by quality ideas, opinions and ideas and not statistical precision (Mingers, 2001). From Minger's works, the issue of quality ideas and opinions should be interpreted as having the researcher to critically relate his/her

findings and interpretations to the existing literature. Later in this thesis, I explain how subjectivity was minimized in this study (see section 3.4.4).

Regarding making sense of both students' and tutors' meanings during the process of analysis, I therefore adopted an interpretivist stance to understand ways in which students made sense of and interpreted the feedback received from their tutors. Interpretivism assisted me to interpret and integrate the various student views and opinions bearing in mind that each student could have understood the tutor feedback differently. Interpretivism demands that researchers begin by examining the context of the study through actions, inquiry and observations rather than begin with pre-determined assumptions. It further assumes that a researcher is interested in deeply understanding how study participants make meaning of their experiences, mediated through the researcher as the research instrument. Such an approach is inductive rather than deductive and the outcome is rich description of the various views, opinions and responses of the participants as obtained from the data generation process (Merriam, 2009; Neuman, 2003; Merriam, 2002).

Merriam (2009) suggests that instead of beginning with theory, hypothesis or some form of pre-conceived ideas of how the world functions, the researcher begins by getting familiar with the very context in which the study participants experience the phenomenon to be studied. Understanding how people in that context make meaning of the experience should be the primary concern (Gubrium and Holstein, 1997). In this study, the phenomenon was feedback and the context was the PBL tutorial group setting in which I got familiar with the tutorial context through active field observations when the tutorial was in action and elaborate interviews and focus group discussions.

### **3.2.2.2 Constructivism**

Though closely related, constructivism and interpretivism should be viewed differently. While interpretivism is an overall paradigm which emphasizes that knowledge about reality is subjective to individuals, constructivism is the underlying theory by which those individuals construct that subjective knowledge about reality (Tuli, 2010). Thus, constructivism underpins the subjective interpretations of people regarding reality about a phenomenon. Constructivism is a form of a learning theory which emphasizes that people construct their own meaning and knowledge of the world through experiencing situations and constantly reflecting upon those situations (Tubey et al., 2015).

Therefore, constructivism should be seen as a theory which emphasizes the fact that the experiences that people perceive as reality are socially and contextually constructed by the very people experiencing a given phenomenon, through interaction and action (Maxwell, 2005; Merriam, 2002; Jones, 2002; Madill et al., 2000; Gubrium and Holstein, 1997). Thus, there might be multiple realities depending on the subjective experiences and interpretations of people in a given setting. One would deduce that constructivism which is about forming social constructions about phenomena in order to get meaning is the theoretical basis of interpretivism which is the view of what meaning and reality are.

I thus believed that knowledge about the phenomenon could only be found as the research process proceeded without any pre-determined hypotheses to test (Tuli, 2010; Sarantakos, 2005; Merriam, 2002). Crotty (1998) identifies key assumptions of constructivism that are critical to this study: 1) Due to the fact that meaning is constructed by people as they engage with the experience they are interpreting, qualitative researchers use open-ended questions that allow exploration of people's views; 2) people tend to engage with the experience and make meaning of it based on historical and social factors; 3) making meaning from an experience is social and based on interaction amongst people in a community of practice. Therefore, a community of practice in the context of this study would refer to the students in the PBL group together with their tutor, interacting and sharing ideas for the common good of the group. The later use of Activity Theory as an interpretation frame will pick up on this notion of community being a group of people engaged in an activity (Chapter 6).

Interpretivism and constructivism are thus concerned about the subjective views and meaning of knowledge and reality as interpreted by people going through an experience within a community. In order for one to understand people's interpretations of experiences, one has to explore from the very people going through the experience. I thus employed interpretivism and constructivism in this study to explore, understand and make sense of students' experiences and use of feedback received during PBL tutorials. This was further enriched by exploring the tutors' views of the feedback process through use of open-ended questioning and probing (Jones et al., 2006; Crotty, 1998).

### 3.2.3 Case study design

At the beginning of this chapter (see section 3.1), I stated that within the interpretive paradigm, a case study approach was specifically used. This section specifically describes the background and definition of a case study as an approach in qualitative research. The significance and relevance of a case study approach are highlighted as well as key principles and misconceptions about case studies discussed.

Case study research is a type of inquiry where a researcher deeply explores an event, phenomenon or process of an individual or group of individuals (Yin, 2003; Stake, 2000). A key difference between a case study and other types of qualitative research designs is that a case study narrows down a broad field into one focused researchable topic in a given setting (Yin, 2009; Merriam, 2002). A case study can give key indications about the subject under inquiry and allows further elaboration and theory creation on a subject (Stake, 2000). A case study is bound by time and activity and typically various data generation methods are employed over a sustained period of time. In this study, the phenomenon under exploration was students' experiences and use of feedback received during PBL tutorials, and also the tutors' experiences of the feedback process in an African university. This phenomenon was explored through my engagement with students and tutors that had experienced the process of feedback within the context of PBL tutorials from one institutional setting in Africa. Thus, this community of students and their tutors in this PBL tutorial context became the *case* to be studied.

Yin (2003: 13) defines a case study as:

*An empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.*

Thus, with a case study design, the research process occurs within real-life contexts in which participants experience a given phenomenon. The idea seems to be allowing the research process to proceed without manipulating the social environment in which participants are situated. Owing to the fact that case studies are specific and focused, it has been argued that findings from case study research cannot be extrapolated to fit into an entire population (Yin, 2003). However, it has also been reported that qualitative case study research perhaps provides a more realistic response about a phenomenon than just statistical surveys because such research is conducted in

real settings where variables are not manipulated (Flyvbjerg, 2006). One can thus observe that in-between these two arguments probably lies the strength of qualitative case study research. Although other types of research designs can provide more generalizable findings, case study research synergizes these designs by deeply exploring an issue in its natural setting and provide more in-depth understanding of that issue.

Yin (2009) reports that another perspective of qualitative case studies compared to other types of approaches lies in flexibility. Qualitative case studies are often flexible during the research process because the research may take on a new direction as it progresses (Yin, 2009). The main advantage of this is that such case studies allow the researcher to follow a line of inquiry as determined by emerging findings in order to pursue a phenomenon to its logical conclusions. This is achieved by having much more information gathered rather than being confined by already pre-determined variables. Such information can provide more deep descriptions of findings. Qualitative case study researchers can use a variety of data collection methods over a set period of time (Baskarada, 2014; Yin, 2009; Merriam, 2002). For this study, data was collected using in-depth individual interviews, focus group discussions, document reviews and field observations of PBL tutorials in action. Further discussion of these methods and why they were selected follows later on in this chapter.

There are several characteristics of interpretivist research that have been reported in literature. These also apply to case study research. A critical review of all this literature reveals five key components namely: (1) research questions, (2) study purpose, (3) unit of analysis, (4) logical linkage of data to study purpose, and (5) criteria for interpreting findings. These components resonate through all the works of key case study researchers (Merriam, 2009; Yin, 2009; Siggelkow, 2007; Flyvbjerg, 2006; Yin, 2003; Merriam, 2002; Flyvbjerg, 2001; Stake, 2000). For this present case study, the aforementioned components were taken note of.

With regard to the first component, the most applicable questions for case study research should allow an in-depth exploration of the subject under consideration (Yin, 2009; Flyvbjerg, 2006). For example, I asked about how students used the feedback received from their tutors. Another component relates to having a clear and definite study purpose. In this study, the purpose was to explore students' experiences and use of tutor feedback, and also explore the tutors' experiences of the feedback process. The other component of a case study is the unit of analysis. A unit of

analysis is the focal area that the study is analyzing. A good unit of analysis occurs when primary research is accurately specified (Thomas, 2011; Yin 2009). Unit of analysis, as a concept, is directly linked to the research questions formulated by the researcher. In this study, the unit of analysis was the feedback that transpired across the PBL groups.

The fourth component of case study research is linking data to study purpose. This linkage is done during data collection as patterns and themes emerge through an iterative process. As data analysis progresses, the researcher tries to link patterns emerging from the data to the study purpose. Therefore, the themes that emerged from this study provided the answers to the research questions formulated. The last component for case study research relates to the criteria for interpreting study findings. Most commonly, the researcher in a case study codes the data before developing themes (Merriam, 2009). The codes then form patterns that emerge as themes. In this study, data was first coded before developing themes. After developing themes, I then extracted meaning from the findings in order to determine implications for current practice and for future research.

Creswell (2013) offers further understanding of what a case study is and how this was applied in this study:

*The case study method explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information... and reports a case description and case themes* (Creswell, 2013, p. 97).

From the works of Creswell (2013), it can thus be seen that researchers can either decide to conduct a single or a multiple case study, depending on whether either approach will make the understanding of a phenomenon better and address the research question appropriately (Yin, 2009). A multiple case study is usually conducted if the researcher is interested in discovering and understanding differences and similarities between cases (Baxter and Jack, 2008; Stake, 1995) and thus, the aim is to analyse data within each case and across cases (Vannoni, 2015; Yin, 2003). Although it has been reported that evidence created from a multiple case study is measured to be strong and reliable (Baxter and Jack, 2008), Siggelkow (2007) suggests that a phenomenon can sufficiently be described by a single case study. Additionally, Warne and Price (2016) argue that single case studies are better than multiple case studies in producing extra and



better theory due to the long observation time and researcher involvement with the one case. Yin (2003) advises that if a researcher wants to study one single thing like a person or a specific group of people, single case study is the best choice. Cognizant of this, and the fact that this study's objectives were not aimed at discovering and describing differences and similarities across students of the different undergraduate health professional disciplines, a single case approach was adopted for this study.

Yin (2003) further reports that the researcher can decide to employ a single case study with embedded units for analysis (i.e. embedded single case study). Here, the researcher can look at sub-units and make a cross-case analysis depending on the study objectives. However, the researcher can also adopt a holistic single case study without cross-case analysis (Yin, 2009). In this study, a holistic single case study approach was used. Although this study involved students from different health professional disciplines and tutors, these should not be viewed as embedded units. The five different tutorial groups should also not be viewed as embedded units of analysis. The aim of the study was not to make cross-case comparisons between any groups of students, but rather to explore the phenomenon of feedback from a representation of all students and their tutors. Therefore, this was a holistic single case study involving one overarching case of undergraduate students and tutors and five sub-cases nested within (i.e. each tutorial group being taken as a sub-case). Including students from different disciplines was aimed at obtaining different perspectives from all groups of students represented at the institution. Having five different tutorial groups was aimed at not increasing sample size, but rather drawing robust conclusions about the phenomenon under investigation as a whole (Yin, 2009; Yin, 2003; Merriam 2002; Stake, 2000). This is analogous to performing more than one experiment in order to improve the authenticity and credibility of findings (Yin, 2009). Later on in this chapter, I explain more how the participants who formed the *case* were selected (see section 3.3.2).

The case study approach was also adopted because it relied on multiple sources of evidence including direct observation, field notes, individual in-depth interviews and focus group discussions, which did not only improve the rigor of the study, but also allowed me to adopt converging lines of inquiry, a form of triangulation and corroboration (Baxter and Jack, 2008; Yin, 2003; Babbie and Mouton, 2001). With such an approach, convergence can be achieved where the multiple sources of evidence represent a possible strong conclusion. A single tutorial group on its own can easily become biased and can easily generalize results (Babbie and



Mouton, 2001). The use of five tutorial groups was aimed at countering these possible weaknesses. In the following section, the *case* for this study is further described.

### 3.2.3.1 Description of the Case

As already mentioned, the *case* for this study involved students and their tutors. The major reason of introducing PBL was that it is a student-centred learning approach where students take charge of their own learning and the lecturer (also called tutor) just guides this learning process. The study population were third year health professional students from five different disciplines namely, medicine, radiography, nursing, dentistry and pharmacy. These students have been participating in PBL tutorials from first year and their tutorial groups are composed of a variety of students (i.e. each tutorial group may have a mixture of students from the different disciplines). The reason for this is because from first year up to the first semester of third year, they study similar course modules where PBL tutorials do take place and only separate after completing the first semester of third year. Therefore, they study the same content and thus receive similar nature of feedback during PBL tutorials (i.e. verbal feedback). Due to the fact that the numbers of students admitted differ for the different disciplines, each tutorial may for example, have more medicine students compared to either radiography or nursing students. However, it is ensured that each tutorial group at least has a representation of students from each discipline. The tutorial groups may have a variety of students from different backgrounds. Some students may come direct from high school while others may have been in the field and are just upgrading their qualifications (i.e. diploma holders upgrading to a degree level in a certain discipline). Although English is not the language spoken by most people in the country, it is the formal language of instruction at all levels of education. Therefore, this facilitates the conduct of tutorial discussions in English. Both male and female students are represented within the tutorials as well. The students are the recipients of feedback within a tutorial group while the tutor is the external source of that feedback. There is also peer to peer feedback within the tutorial setting. However, the focus of this study is the tutor feedback.

Learning is organized into integrated specific modules with each module being developed by experts from different disciplines, where each discipline contributes to the development of module content. However, despite the fact that PBL tutorials have a strong presence in the first three years of study across all professional disciplines, there are other instructional strategies to engage the students that supplement PBL. These include; clinical exposure sessions, over-view lectures, laboratory sessions, skills training within the skills lab and seminars. Although

feedback to students, which is the focus of this study, is practiced in each of the above teaching and learning strategies, this study specifically focused on feedback encountered within a PBL tutorial setting.

Each PBL tutorial group is comprised of 10-15 students with one tutor for each group. The tutor guides the group and also provides feedback to students. Each PBL tutorial group meets twice a week to discuss a learning task (also called a *problem*). The tutors usually have tutor guides to assist them in facilitating the tutorials. These guides contain content, learning objectives as well as outcomes that students need to achieve. The guides also contain key reading references for students. In the first meeting, students convene with their tutor to brainstorm a presented learning task (problem) and come up with key learning objectives that guide their search for new knowledge. In the second meeting (usually after three days), students and their tutor re-convene to discuss and share their new found knowledge. Any unresolved issues are raised through the discussions and are resolved in the new week immediately prior to tackling a fresh learning task. There are a series of ten tutorial steps that students follow during their tutorial sessions (Galukande et al., 2008). The tutorial steps are summarised in Table 3.1.

**Table 3.1: The Ten Tutorial steps**

Tutorial Step	Description
Step 1: Getting started	The PBL tutor introduces himself/herself, students introduce themselves so that they know each other; students elect a Chairperson and Scribe and also establish ground rules to govern the tutorial.
Step 2: Introducing the tutorial Problem	This is when one student reads out the presented learning task or case to the rest of the students.
Step 3: Identifying unfamiliar terms	Students read through the presented problem and identify terms and concepts that are not familiar to them. They try to use prior knowledge to define them.
Step 4: Deriving a Theme	This step requires students to come up with one suitable theme that the learning task or problem is addressing. The final theme is arrived through a series of discussions and exchange of ideas.
Step 5: Raising learning issues	In this step, students brainstorm and raise learning issues from the problem. This could be in form of questions. They then use prior knowledge to try and explain the issues

Step 6: Concept mapping	Here, students form hypothesis, and link concepts of the problem together in a bigger picture.
Step 7: Deriving learning objectives	After brainstorming, students have many unanswered questions. They identify knowledge gaps and these become the learning objectives
Step 8: Tutor and self-evaluation (Feedback)	Students evaluate their performance and also the tutor evaluates the students and gives them feedback regarding their performance in the tutorial discussions
Step 9: Self-directed learning (SDL)	Students engage in an independent study to address the knowledge gaps. They use a variety of sources outside the tutorial room
Step 10: Report back session and closure of problem	In this last step, students gather again after 2-3 days to collaboratively discuss the new found knowledge before encountering a new learning.

The tutors who were included in the study were the ones responsible for the five PBL tutorial groups that were considered. Each tutorial group has one tutor to facilitate the student discussion and it is this tutor who delivers feedback to students. The five tutors belonged to the professional fields of Physiology, Anatomy, Biochemistry, Pathology and Microbiology. This therefore shows that they come from different disciplinary backgrounds. All tutors at the institution receive training on how to facilitate a PBL tutorial. This training is conducted once at every beginning of a semester and is facilitated by qualified experts in health professions education. The training focuses on key aspects that include: how to conduct a tutorial following the ten steps summarized in Table 3.1, writing of PBL problems/tasks, student evaluation during tutorial sessions and principles of giving feedback during tutorials. The tutors also have different experiences in facilitation, with some having longer years in facilitating compared to others.

### 3.3 METHODS

This section describes the setting for the study, participants involved, data generation techniques as well as analysis process that was followed.

#### 3.3.1 Study Setting

The study was conducted at Makerere University Medical School in Uganda. Makerere Medical School is the oldest health professions training institution in East Africa (Kiguli-Malwadde et

al., 2006), and has been at the fore front of taking a lead in health training educational reforms and innovations in the region. The institution trains undergraduate health science students using PBL as a learning approach in various health disciplines namely: medicine, dentistry, radiography, pharmacy and nursing. All these disciplines are accredited by both Makerere University Council as well as the Uganda National Council for Higher Education. The medicine program is offered over a period of five years, and on average has a total of 400 students across the five years at any one time, the dentistry program is offered for a period of five years as well with an average of 125 students across the five years. The radiography program lasts four years with an average of 80 students across the four years, the pharmacy discipline also lasts four years with an average of 120 students across the four years. The nursing programme is offered over a period of four years as well averaging about 140 students across the four years at any one time. From first year up to the first semester of third year, all students from across the five disciplines (i.e. medicine, radiography, nursing, pharmacy and dentistry) study similar modules where PBL tutorials do take place and thus learn together (i.e. a single tutorial group may for example comprise students from medicine, nursing, pharmacy, dentistry and radiography). Therefore, the structured PBL tutorial approach starts from first year up to first semester of third year during which time students study together. The modules studied during this time are within the fields of basic sciences that include: anatomy, physiology, biochemistry, microbiology, pathology, behavioral sciences and primary health care. It is only on a few occasions that students study discipline-specific courses during this time, and these discipline specific courses do not have PBL tutorials. All undergraduate students do not start clinical courses until the second semester of third year. Therefore, the students that were included in this study had not been introduced to any clinical course. Clinical clerkships and clinical courses commence in the second semester of third year at which point students separate out into their discipline-specific fields. Therefore, the PBL groups that were considered in this study belong to the pre-clinical years and this is when these tutorials are conducted. Beyond the pre-clinical years (i.e. from the second semester of third year onwards), there are no PBL tutorials. It should thus be noted that students from first year up to the first semester of third year do take similar PBL modules and have similar PBL tutorial cases during these shared modules, despite the fact that they represent different disciplines. This setting probably strengthened the interpretive rigor in this study because I generated information from a representation of all students that had a PBL tutorial experience. After the first semester of third year onwards, the students then completely separate out according to each professional discipline, and at this time, they do not have the conventional PBL tutorials. Thus for this particular study, the student participants were selected only from third year of study for each of the aforementioned health science disciplines. In the next section,

the justification and criteria for selecting third year health science students is explained. The majority of the students admitted into the aforementioned undergraduate disciplines come directly from high school to the university, while a few come in with previous qualifications such as diplomas in the relevant disciplines. Newly admitted students are generally new to PBL as a learning strategy, but they are oriented to this learning approach during the first two weeks as part of their orientation programme in the institution.

The institution admits a diverse group of students from different tribes. The official language of instruction and assessment in Uganda's school system is English and so all students are competent in communicating using English. The PBL tutorials are also conducted in English.

### **3.3.2 Participants and Sampling**

The study involved third year health sciences students that were drawn from across five disciplines. The disciplines and respective number of students from which selection was done included: medicine (n=80), dentistry (n=25), radiography (n=20), pharmacy (n=30) and nursing (n=35). The numbers relate to the total number of students for each discipline enrolled in the third year. Third year students were specifically considered as the study population because they have experienced PBL tutorials from their first year and hence had more experience of the feedback process within a tutorial setting and could be expected to provide more rich information. In addition, third year students were considered because from first year up to the first semester of third year, the disciplines are integrated within their tutorials since they study similar courses. Therefore, the study focused on exploring experiences of students regarding feedback received during PBL tutorials, and not to find out about differences across the different health sciences disciplines. First and second year students were excluded from the study because they had less common experience of the tutorial feedback process. The students beyond third year were also excluded because they study discipline specific courses that do not involve PBL tutorials.

In order to select the needed participants from the study population, purposive-convenience sampling was used. Purposive-convenience sampling is a type of non-probability sampling method where the researcher generates data from participants who are available to participate in the study (Valerio et al., 2016) and should be having the required knowledge and experiences to

provide information that will answer the research question (Thomas and Harden, 2008; DiCicco-Bloom and Crabtree, 2006). The sampling strategy used in this study therefore had some elements of both purposive as well as convenience sampling techniques. In a recent study, both of these techniques were also employed (Valerio et al., 2016). For example, the five PBL groups included in the study were purposively selected, while student participants from within those groups were conveniently selected. Later on in this section, I explain how the five PBL groups were arrived at. It has been reported in literature that sampling using a combination of non-probability sampling techniques is necessary if it is needed to address the research objectives (Teddlie and Yu, 2007). In this study, I aimed at obtaining experiences from all students in the different disciplines at the institution. Following this, the five PBL tutorial groups involved in the study were selected from a list of third year tutorial groups obtained from the Education Co-ordination Office. Cognizant of the fact that some disciplines have fewer students admitted than others, I selected the five groups based on the fact that each of them had a representation of students from the different health sciences disciplines. The total number of five PBL groups to be included in the study was not pre-determined by myself. Arriving at the final number of five PBL groups to be included in the study was guided by the principle of theoretical sampling and saturation (Baxter and Jack, 2008). Baxter and Jack (2008) reported that theoretical saturation can be reached when responses become repetitive and no new information is coming up. In this study, information obtained had become repetitive with the five PBL groups. Access to the potential participants that belonged to the selected five PBL groups was negotiated through the coordinator of the PBL tutorials through use of e-mails and communication through notice boards.

Having selected the five PBL groups, another task for me was then to select individual students who would participate in the interviews and focus group discussions from the already selected five PBL groups. The data collection methods are described later on in section 3.3.3. An invitation to participate in individual interviews and focus group discussions was specifically sent out by the PBL coordinator to the students in the identified five PBL groups, and not to the entire third year student population. For the interviews, each PBL tutorial group was represented by one student per discipline (for example, for PBL group 1, I interviewed one student from medicine, one student from radiography, one student from nursing etc.). Choosing the one student to be interviewed from a particular discipline in each tutorial group was purely on first come basis (for example, the first radiography student who responded in a particular group to accept an interview was the one invited and subsequently interviewed). This applied to PBL groups 2, 3, 4 and 5. In total, each tutorial group had 5 students interviewed, one from each

discipline, making it 25 interviews from the five PBL tutorial groups. By the 25<sup>th</sup> interview, responses had become repetitive, and I was getting no new responses. After the interviews, I noted the students who had participated in the interviews (each student was identified by a code) and did not include them in the invitations for the focus group discussions. These invitations were sent to all the remaining students in the five PBL groups following the interviews. Each focus group had six students from each PBL group. The six students from each PBL group were also chosen on first come basis, but this time it was open (i.e. I did not restrict it to any discipline, but rather, those who responded first were included in the focus groups).

In addition to the students, I also interviewed the five tutors who were responsible for each of the PBL tutorial groups included in the study. The decision to interview the five tutors was reached at following analysis of the data from students. Having analyzed the data from students, it was discovered that there was need to further understand and expound on the issues and responses raised by the students. Thus the data from the tutors who were included assisted me to interpret and further understanding what the students were saying.

### **3.3.3 Methods of data generation**

The data in this study was generated in two phases. The first phase was named the core phase. This core phase involved generating data from students using individual interviews, focus group discussions, observations of the tutorial process, and conducting document reviews. This core phase had two steps. The first step was carrying out a pilot exercise with one PBL tutorial group. This pilot exercise is described in more detail in section 3.3.3.1. The second step in the core phase involved generating data from the remaining four PBL tutorial groups. The second phase in data generation was named the follow-up phase. This follow-up phase involved generating data from tutors who were involved in facilitating the five tutorial groups. The phase commenced after analyzing data from the core phase (i.e. data from student interviews, focus groups, observations and document reviews). It was deemed fit to obtain data from tutors so as to provide further context for understanding the students' responses. The time lag between observing the PBL groups and interviewing the tutors was one week.

As mentioned earlier, a good case study benefits from having multiple methods of data collection (see section 3.2.3), which ensures that the study has sufficient rigor (Yin, 2009; Green et al., 2006). Methods generally refer to appropriate techniques of generating the required

information from participants (Prasad, 2005). In a case study, triangulation is important in order to ensure acquisition of comprehensive findings that reflect participants' meanings as accurately as possible (Yin, 2009; Stake, 2000). Triangulation refers to having multiple data collection methods such that rich and detailed information is gathered using multiple techniques (Stake, 2000).

Many sources of data permit case study researchers to unfold a story that respects participants' meanings. This case study research also focused on making meaning of participants' views on the subject of feedback. I selected in-depth individual interviews and focus group discussions as the primary data generation avenues and then added richness to the data with additional data points: the tutorial group observations and document reviews. The individual interviews generated issues that were subsequently followed up with the focus group discussions. These were later supplemented by tutorial observations and then document reviews to provide further understanding and clarification of the issues that arose. In the following sections, the actual data generation processes using the various methods is described. Figure 3.1 summarises the flow of participant recruitment and methods of data generation. These methods are then explained in more detail in the subsequent sections.





**Figure 3.1: Flow of participant recruitment and data collection**

### **3.3.3.1 Pre-exercise to refine study instruments (The Pilot)**

The major aim of this pilot exercise was to refine data generation techniques and eliminate ambiguities in questions. It was also aimed at refining the observation tool. Due to the nature of qualitative research taking place in naturalistic settings, pilot studies are usually not necessary because refinement of data collection instruments and techniques happens at every stage of the research process (Charmaz, 2006). For example, when conducting interviews, the questioning style and wording of questions can constantly change even after several interviews as long as the questions are still within the confines of the research boundaries (Braun and Clarke, 2006). However, novice researchers can conduct a pre-exercise to get acquainted with questions and data collection techniques (Braun and Clarke, 2006; Charmaz, 2006). Therefore, in this study, a pre-exercise was carried out (i.e. the pilot exercise). This was done in the interest of strengthening the rigor of the study.

This pre-exercise was carried out with students from one tutorial group (i.e. tutorial group 1) which thus became the pilot group. From this pilot group, five students were interviewed and six others engaged in a focus group discussion. A description of how students were invited and selected for interviews and focus group discussions has been already provided (see section 3.3.2). Additionally, the details of how the interviews and focus group discussions were conducted are discussed later on in this chapter (see sections 3.3.3.2 and 3.3.3.3). The interview questions and focus group questions followed in the pilot were the same as those followed in the subsequent groups as they were not altered. The feedback process in the tutorial session was also observed with this group of students. I conducted the interviews, conducted the focus group discussion and observed the feedback process in the tutorial. The preliminary observation tool was developed by myself, being informed by literature on feedback during the tutorial process. After the pilot exercise, I engaged with the students in a de-brief session to find out if the questions were clear and any other issues of concern. Students responded that all questions were clear, but interviewing and discussion times were too long. For example, on average each recorded interview had lasted about two hours while the focus group discussion lasted almost three hours and fifteen minutes. The longer time taken could be mainly attributed to students discussing many issues, some of which were not part of the study. With this, I modified the questioning technique and only probed for those issues that were relevant. I would also re-direct the discussion to the required line of exploration in cases of digression. This reduced the time duration of interviews and focus groups. Regarding the preliminary observation tool, I noticed

that some items were often repetitive and as such, some were deleted from the tool to avoid unnecessary repetition.

It has been reported in literature that data from a pilot study can be included in the main study as long as the same methodology has been followed in order to strengthen the findings in the main study (Thabane et al., 2010). In qualitative research, flexibility normally happens (see section 3.2.1) where a researcher can modify and refine data collection techniques and also follow different lines of inquiry even as the research process proceeds (Creswell, 2007; Braun and Clarke, 2006; Jones and Bugge, 2006; Thorne et al., 2004; Esterberg 2002; Charmaz 2000), so as to gather the most relevant information to address the research objectives (Babbie and Mouton, 2001). Information already obtained is not discarded, but rather enriched with new emerging information (Baxter and Jack, 2008). Therefore, although the pilot group assisted me to refine the data collection techniques, it still resulted in useful information, and was included in the full data set. From the pilot exercise, I also gained confidence and experience in interviewing, inter-personal skills and practiced transcribing from the exercise. In the next sections, the specific data generation techniques used in this study for the pilot group and subsequent four groups are further described in more detail.

### **3.3.3.2 The Individual Interviews**

Interviews were the first technique adopted for generating data. The interviews were conducted by myself. The interview schedule was developed by myself as well being guided by literature on feedback as well as my own experience of the PBL tutorial especially the feedback process. An interview is a conversation between two individuals around a specific pre-determined topic (Charmaz, 2006). The interviewer asks questions and the interviewee responds appropriately (Merriam, 2002). Individual interviews need to be conducted carefully to ensure a reliable case study data. Therefore, choosing the right participants with the required knowledge to address the study objectives is key in this exercise (Charmaz, 2006). The researcher should be able to determine who the people with the required knowledge are and ensure access to such people in order to ensure that rich information is solicited (Bogdan and Biklen, 2003). The reason why I identified students as the sources of information needed to address the research objectives was because they had participated in PBL tutorials and potentially had experiences that were relevant to this study. In addition, the reason as to why tutors were also later on interviewed was because they had experience of the PBL tutorial that was necessary to potentially offer more insight into

what the students shared. A key advantage of face-to-face individual interviews over the other methods of data collection is that the researcher can capture both verbal and non-verbal cues from the participant that might indicate to either refine the questioning style or change the interviewing techniques (Merriam, 2009). In addition, individual interviews allow the researcher to obtain individual experiences and views that are not influenced by the presence of other participants as might happen, for example, in focus groups (Merriam, 2009). This was important for this study because I wanted to deeply explore student individual unique experiences of feedback without being biased by other students' experiences.

During the conducting of interviews, relationships, trust and rapport need to be established. Patton (1987: 196) reported that:

*The purpose of interviewing is to find out what is in and on someone else's mind. We interview people to find out from them those things we can't observe.*

In this study, I first politely introduced himself and explained the purpose of the study, despite the fact that some students may have known him. This was done to reduce any power differentials that could potentially have existed between me and the students. I also allowed each interviewee to introduce him or herself and further emphasized that findings from this study were aimed at improving the PBL process. When interviewing for case study research, active listening and being non-judgmental should be strictly observed. Merriam (2002) suggests six types of questions to be used when interviewing in case study research: 1) experiences or behavior; 2) opinions or beliefs; 3) feelings; 4) knowledge; 5) sensory; and 6) background. Open-ended questions are normally encouraged and there should be no dichotomous or leading questions to avoid a closed style of questioning and answering (Charmaz, 2006; Esterberg, 2002; Seidman, 1991). Using close-ended types of questions is likely to dictate the answers that participants give and thus limit exploration and free expression of opinions, views and ideas.

The questions asked were to a large extent aligned to Merriam's types in that, I explored participants' experiences, opinions, beliefs and feelings about the tutor feedback received. In addition, I used open-ended questions to allow free expression of experiences and made interviewing conversational, sharing information about myself with the participants in order to further create trust and rapport (Appendix A). This put the participants at ease and shortened the interviewing time. A shorter interviewing time is likely to allow participants to remain alert and interested in the interview (Charmaz, 2006). Subsequently, they can provide more thoughtful

views as compared to longer interviewing times that may become boring and where participants may simply respond to complete the interview process (Charmaz, 2006). In addition to being open-ended, the interviews were semi-structured. Semi-structured interviews are the types of interviews which allow a researcher to explore several ideas depending on what a participant says (Merriam, 2009; Charmza, 2006; Bogdan and Biklen, 2003). These types of interviews are broad and allow a participant to freely voice out as many ideas as possible (Merriam, 2009; Creswell, 2007; Rubin and Rubin 2005). At the same time, such interviews bring in some organization in the process as they allow the researcher to follow a similar line of inquiry with all participants (Rubin and Rubin, 2005).

Probing was used where necessary to stimulate students to elaborate on issues or clarify their views (Denzin and Lincoln, 2003; Kvale, 1996; Patton, 1987). Questions for individual interviews were constructed around exploring what participants thought of feedback, their experience of giving and receiving feedback during PBL tutorials, the kind of feedback they received and how they utilized feedback obtained.

Twenty-five students were individually interviewed. Of this number, each discipline was represented by five students. The selection process of the students to participate in the interviews has already been described (see section 3.3.2). The interviews were conducted by me in English since both I and the students were competent in English language. It is true that some of the students knew me and these others did not know me. Therefore, as a researcher conducting the interviews and being a faculty member myself, there is a potential influence this could have had on the research process. Later on in this chapter, my position as a researcher is described (see section 3.4.4).

Regarding the five tutors of the respective groups, each tutor was sent an invitation to participate in an interview (Appendix F). The invitation contained details of the study including the purpose and objectives as well as mentioning that their responses were to be used to improve feedback practice during PBL tutorials. They were also informed in the invitation that their responses will not be identified by name and that participation was completely voluntary. They were also informed that those not willing to participate will not be affected in any way. This invitation was also accompanied by the information sheet (Appendix E) and a consent form (Appendix H). All the five tutors agreed to participate in the interviews. Following this, each tutor was then

interviewed by myself using open-ended questions (Appendix C). The questions explored the tutors' experiences of feedback delivery within the PBL groups. The interview questions for the tutors were also first piloted with one of the tutors who informed me that they were clear and understandable. No adjustments were thus made. All interviews were face-to-face. Each individual interview that was conducted after the pilot group lasted approximately forty-five minutes to one hour. The interviews were conducted by myself in my office which was the most convenient for this exercise since it was quiet. Conducting the interviews individually also allowed me to understand the discussion pathway during analysis.

### **3.3.3.3 Focus group discussions**

The focus groups were conducted with the students in addition to the individual interviews to further triangulate the data and obtain rich responses from the participants (Braun and Clarke, 2006; DiCicco-Bloom and Crabtree, 2006; Kvale, 1996). I conducted the focus groups. A focus group is a discussion with particular members about a topic on which such members have adequate knowledge and experience (Krueger and Casey, 2009), and is facilitated, monitored and often recorded by a moderator who in many cases happens to be the researcher (Barbour, 2007). Focus groups were originally used in market research and eventually spread to other disciplines (Bloor et al., 2001).

Unlike individual interviews, focus groups are necessary when obtaining data on collective views especially when a debate amongst participants is likely to elicit more quality ideas on a subject under study (Krueger and Casey, 2009). They are useful in obtaining detail of the subject under study since views from different members can trigger views from other members which may otherwise never be voiced (Hennink, 2007; Morgan, 2002; Chestnutt and Robson, 2002;). From the synthesis of literature reporting about focus groups as a method of collecting data, the strengths of focus groups therefore seem to rotate around three key areas namely: (1) enabling in-depth discussion with a small group of people, (2) focus on a particular area of interest that allows participants to discuss in detail and (3) allowing interaction among members which enriches the discussion. In addition, the focus group discussion seems not to aim at arriving at a consensus, but rather to generate a range of responses and ideas from participants that can help me to deeply understand the subject under investigation. In this study therefore, the focus groups helped me to get useful insights on feedback in a PBL tutorial through active discussion and interaction with the students.

The nature of the tutorials also contributed to the decision to use focus groups in addition to interviews. Tutorials are discussion groups and students always freely share and discuss ideas and opinions within these tutorials. Therefore, they were familiar with a group discussion and I felt that it would be important to have focus groups to enrich the data that had been generated during the in-depth interviews. Although I was cognizant of the fact that sometimes participants may be inhibited from expressing their views in a group, this familiarity with group discussion amongst the students probably minimized this fear. In order to keep the discussions on track while at the same time allowing members to freely discuss, the moderator of the discussion lists down major topics to be covered in the discussion together with open-ended questions and prompts (Silverman, 2000). The quality of questions asked can influence the quality of information collected by the researcher. Open-ended questions are advised as they allow participants to express ideas from many different angles and from their own specific experiences.

It has been recommended that focus groups usually involve 6-8 participants that have a similar experience (Hennink, 2007). Following this recommendation, this study recruited six students into each focus group. The process of selecting students into the focus group has already been described in this chapter (see section 3.3.2). Students who participated in the interviews did not participate in the focus groups. This was done to ensure that as many students as possible participate, which potentially results into richer data collected from a variety of students. A non-threatening environment is key to a successful focus group discussion (Krueger and Casey, 2009). The focus group discussions were moderated by myself in one of the tutorial rooms. Using a tutorial room for the discussion was aimed at conducting the discussion in a more natural setting. For this study, five focus group discussions were conducted.

Following the pilot focus group, each of the remaining four focus groups lasted about one hour and thirty minutes. Questions for the focus groups were also open-ended as was the case with the interviews (Appendix B). This was done to allow me to explore the students' experiences of feedback during PBL tutorials, and also allow participants to freely express these experiences without being limited to particular responses. These guiding open-ended questions for the focus groups were formulated by myself to clarify issues that arose from the interviews. Therefore,



both interviews and focus groups explored the subject of feedback with the aim of obtaining rich data tapping on the advantages of each method.

Responses from interviews and focus groups were audio-recorded. Summarized hand written notes of key points was also done by a research assistant during the interviews and focus groups to ensure that key points could be tracked and later referred to within the recording. Before each interview and each focus group discussion took place, the participants were reminded of the study purpose, procedures and possible benefits. It was explained that they were not under any obligation to participate and were free to withdraw at any point without incurring any consequences. Any questions/issues were clarified. Each participant read both the information sheet (Appendix E) and the consent form (Appendix H) and subsequently signed the consent form. Transcription began after the first pilot interview and pilot focus group discussion and thereafter proceeded with the subsequent interviews and focus groups.

#### **3.3.3.4 Observations**

Although in-depth interviews and focus group discussions were the primary data gathering techniques, I enriched this data with additional data sources, one of which were observations. Observation was also used in addition to interviews and focus groups to further triangulate data collected (Jones and Bugge, 2006). The observations were made after the interviews and focus groups. One observation was made for each of the five tutorial groups. The tutorial usually takes between two and half to three hours, and this was the time during which each group was observed. The major advantage of observations is that a researcher gets an opportunity to collect information from actions of participants in a natural setting where the action ideally takes place (DeWalt and DeWalt, 2010; Li, 2008). The tutorial sessions in action were observed by me against a checklist that was developed by myself (Appendix D). This checklist specifically targeted the feedback process within the tutorial session since the focus of this study was feedback. A critical review of literature on good feedback practice assisted me to develop the checklist targeting aspects such as language of feedback, specificity of feedback and content of the feedback. However, this checklist was also refined following the pilot exercise. The key change made to the checklist following the pilot exercise was to reduce the number of statements on the list since some of them were not specifically applicable to a typical PBL tutorial feedback session. In qualitative research, data collection instruments can be refined to collect the required data even as the research process progresses (Merriam, 2002), hence, I



utilized the pilot group (i.e. first tutorial group) to refine the observation checklist. This refined checklist was then applied to observations in the other four tutorial groups.

The discussions of the PBL tutorials were not audio-recorded because the PBL tutors and the Ethics Committee of the institution where the study was conducted did not give permission to me to record the tutorial proceedings. . The Ethics Committee and the tutors did not also allow me to openly observe the tutorials without a guiding checklist, hence the use of a pre-determined checklist that was approved. However, I was permitted to write down a few field notes by the Ethics Committee, but being guided by the developed checklist. To observe the tutorial proceedings, I sat in the tutorial sessions after getting permission from the PBL co-ordination office and from each individual tutor. The five tutorial groups that were observed were those same groups from whom participants were drawn for the interviews and focus group discussions. I did not participate in the tutorial discussions. The students were informed that the session was being observed for purposes of identifying key issues to improve the conduct of the tutorials. Verbal consent was first obtained from the students as well before the tutorial observations took place.

### **3.3.3.5 Document reviews**

Review of certain key documents was the other data source. Document review was done after the interviews, focus groups and tutorial group observations. It has been reported that collecting data from documents is often not thought about in qualitative research (Henning, 2004). However, in this study, I used document reviews as well because of the fact that some of the emerging data from the other sources needed to be explained by information obtained from certain key documents. For example, some of the student responses regarding feedback received from tutors across the five PBL groups seemed to imply that certain aspects of information were lacking in their curriculum to guide tutors. Subsequently, the documents reviewed included: the curriculum of each of the five disciplines from which participants were drawn as well as the tutor guides that tutors use as reference guides during PBL tutorials. Permission to review these documents was sought and obtained from the Registrar. The documents were subsequently obtained from the Registrar's Office. From the documents, I was specifically interested in finding out whether there were documented guidelines for tutors to deliver feedback that targets multiple PBL outcomes. Information from these documents was captured as field notes by myself in a notebook. The observations thus concluded the methods of generating data employed

for this study. Earlier in this chapter, I explained that generating the required data in this study was done in two phases (see section 3.3.3). Table 3.2 below summarises these phases.

**Table 3.2: Phases and methods of data collection**

Phase	Activity
<p><b>Phase one: Core phase</b>  <b>Step 1: The Pilot exercise with one PBL group (This phase took 1 month)</b></p>	<p>This was the pilot exercise with the first tutorial group:</p> <ul style="list-style-type: none"> <li>• 5 in-depth interviews were conducted with students, followed by one FGD to enable a different perspective on the same issues (6 students). Additionally, this pilot group was observed during the tutorial process using a checklist.</li> <li>• This data was transcribed and analysed thematically. Based on the responses, the tools (interview and FGD schedules and checklist) were amended</li> </ul>
<p><b>Phase one: Core phase</b>  <b>Step 2: Collecting data from remaining 4 PBL groups (this phase took 4 months)</b></p>	<p>This phase involved collecting data from the other 4 tutorial groups using interviews, FGDs and observations.</p> <p><u>Interviews:</u></p> <ul style="list-style-type: none"> <li>• 20 in-depth interviews (from four other groups)</li> <li>• This data was transcribed and analysed before the FGDs</li> </ul> <p><u>FGDs:</u></p> <ul style="list-style-type: none"> <li>• 4 FGDs were held (4x6) representing each of the remaining 4 tutorial groups</li> <li>• This data was transcribed and analysed.</li> </ul> <p><u>Observations:</u></p> <p>The remaining 4 tutorial groups were observed using the checklist, data abstracted and analyzed.</p> <p><u>Document reviews:</u></p> <p>After interviews, FGDs and Observations, the curriculum and tutor guides were reviewed. Data was abstracted and analyzed.</p>
<p><b>Phase two: Follow-up phase with</b></p>	<p>5 in-depth interviews with tutors were</p>

<b>tutors (this phase took 2 weeks)</b>	conducted. This was done after analysis of data from the students and documents. Data from tutors was transcribed and analyzed and later incorporated into the interpretation of the findings.
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### 3.4 DATA ANALYSIS

In qualitative research, there is continuous linkage between data collection and analysis (Denscombe, 2014; Denzin and Lincoln, 2003; Strauss and Corbin, 1998). In this study, data analysis commenced straight after the first interview, first focus group and first tutorial observation of the pilot and thereafter continued with the subsequent groups. This assisted me to immediately begin to identify common patterns and inform subsequent data generation (Strauss and Corbin, 1998; Stake, 1995).

Analysis did not only mean understanding how participants made sense of their experiences of feedback received during tutorials, but also identifying common patterns that emerged during the process of making meaning. As is with the case in data collection, the researcher still remains the analytical instrument in qualitative data analysis. Data analysis is the means by which data is reduced and organized into key findings by the researcher (Britten et al., 2002). Thematic analysis was used in this study. Thematic analysis is a type of analysis that involves identifying, analyzing and reporting common patterns (themes) within collected qualitative data (Braun et al., 2014; Vaismoradi et al., 2013; Braun and Clarke, 2006). Thematic analysis was chosen for this study because it is applicable over a wide range of theoretical and epistemological approaches which allows flexibility during analysis and provides rich descriptions of data (Charmaz, 2006; DiCicco-Bloom and Crabtree, 2006). In addition, thematic analysis had relevance to the paradigmatic stance adopted in this study, thus aligning with my epistemological position as a researcher.

Analysis was guided by data being generated as well as informed by the theories guiding the study. This was done to triangulate the analytical process such that the emergent themes were not only well grounded in emerging data, but also informed by theory. Analysis was manually carried out by me following an iterative process of constant comparison, a valuable technique in qualitative research methods (Vaismoradi et al., 2013). Manual data analysis was used because I wanted to fully get engaged with the data and get a deeper understanding of participant

responses, so as not to misrepresent their responses (Braun and Clarke, 2014; Braun and Clarke, 2013). By reading through each of the transcripts, I engaged with the data trying not to miss out any phrases or responses which assisted in the interpretation of the responses. I was inspired by what has been reported, that qualitative researchers should aim at *getting intimate with data* (Esterberg, 2002:157), and the reason of immersing one-self with participant transcripts is to occupy the researcher's memory with the generated data (Guest et al., 2012; Sandelowski and Barroso, 2007; Sandelowski, 1994). This was thus, the major motivation for using manual analysis.

The analysis did not only focus on identifying common responses, but also focused on identifying any key differences across the responses from participants (Braun, Clarke and Terry, 2014; Bazeley, 2013; Bazeley, 2009). The process of data analysis involved reading transcribed data, comprehending the data, synthesizing it, theorizing and constant comparisons of emerging codes which allowed themes to naturally emerge from data generated, a common practice in qualitative research (Thomas and Harden, 2008). The analysis guide put forward by Creswell (2005) partly informed this process. In this guide, Creswell (2005) suggests six steps which are described in a linear order, but they may be interactive (recursive element). These include:

*Step 1:* This step involves organizing and preparing data for analysis (p. 185). Here, recordings and field observation notes were put into a Word document.

*Step 2:* This step emphasizes reading through the data (p. 185). Here, I read through the data to get a general understanding of what the participants said.

*Step 3:* This step involves beginning the coding process (p. 186). Here, I organized the data into common segments by identifying texts that had similar information or patterns and then labeled those segments using the participants' terms or language used.

*Step 4:* This step involves using the coding process to generate bigger categories from the codes (p. 189). Here I related the smaller codes to each other and to the data and established categories which in turn generated themes.

*Step 5:* This step emphasizes how themes will be portrayed in the qualitative narrative (p. 189). For this step, I analyzed themes and presented them along with supportive narratives from the participant responses.

*Step 6:* This last step is about interpreting or finding meaning in the data (p. 189).

In addition to Creswell's steps above, the coding process and data display were also partly guided by the framework put forward by Miles and Huberman (1994). This framework consists of three levels of the analysis process, and a synthesis of the specific activities within each level of Miles and Huberman's framework demonstrates that they resonate well with what is described in Creswell's six steps described above. The three levels are illustrated below:

**Table 3.3: Miles and Huberman Levels of Analysis (Miles & Huberman, 1994)**

LEVEL	DESCRIPTION
<b>LEVEL 1:</b> Summarizing and packaging data	<b>Preparing raw data to work with by:</b> -Transcribing interviews, focus group discussions -Transcribing audio-recorded feedback process -Collating documents for review <b>Developing categories to fit the data by:</b> -Coding of data (interviews, focus groups, observations) to form categories -Document reviews to form categories
<b>LEVEL 2:</b> Repackaging and clustering the data	<b>Identifying patterns, trends and themes in the data by:</b> -Reviewing formed categories to establish common patterns and themes across the data sets -Reviewing all data sets to ensure that all data is addressed <b>Data reduction and refinement by:</b> -Identifying themes and clusters and display -Cross-checking for repetitions and errors
<b>LEVEL 3:</b> Synthesis of the data and building theoretical propositions	<b>Explaining the data by:</b> -Presenting integrated data in response to research objectives -Developing explanatory frameworks in relation to literature

The first level in Miles and Huberman framework is about preparing the raw data and initiating the coding process to obtain categories. In Creswell's steps, this level is reflected in the first three steps which relate to organizing the data, reading through the data and initiating the coding process (Creswell, 2005). The second level in Miles and Huberman framework speaks to discovering bigger patterns of the data, trends and relationships within the data to form themes.

This level of re-packaging the data is also reflected in Creswell's fourth and fifth steps which emphasize relating codes to form bigger patterns of meaning in form of categories and themes.

The last level in Miles and Huberman framework relates to interpreting and synthesizing the data to build explanations and propositions. This last level is a reflection of Creswell's sixth step which rotates around interpreting and finding meaning of the obtained data. Essentially, this is about building explanations as well. Therefore, one can observe that both Creswell (2005) as well as Miles and Huberman (1994) frameworks reflect similar principles and they both culminate into provision of an explication and interpretation of the data presented. However, it should be noted that drawing out interpretations from the data does not happen as a one off step, but rather it is a continuous process that happens throughout the research process.

Open coding, which was followed in this study, involves labeling words and phrases within the text by highlighting, underlining or circling them (Braun and Clarke, 2006; Henning, 2004). Esterberg (2002: 158) has described open coding as a process where:

*You work intensively with your data, line by line, identifying themes and categories that seem of interest.*

The obtained codes were related to each other to generate categories through a process of axial coding. Axial coding involves placing a number of related codes into one bigger group like a sub-theme/category (Braun and Clarke, 2014; Braun and Clarke, 2006; Weed, 2005; Pope et al., 2000). During axial coding, the emergent categories were also related to each other to generate themes and eventual clusters. In section 3.4.1 that follows, the analysis process involving coding of the data is described in more detail.

### **3.4.1 The Analysis Process**

The process of working through, reducing, summarizing, packaging, displaying and interpreting the data was guided by the principles advanced by Creswell (2005) as well as Miles and Huberman (1994) that have been described in section 3.4. This study explored the experiences and opinions of participants regarding feedback in a PBL tutorial, through in-depth individual interviews, focus group discussions, document reviews and observations. The transcripts from the interviews, focus groups and data obtained from the checklists and reviewed documents were

constantly compared during analysis which ensured that the emerging findings and interpretations were well grounded in the data generated. The process of data analysis and reduction was carried out at two levels (i.e. Level 1 and Level 2) as illustrated in the framework by Miles and Huberman (1994). However, although data was analyzed through these levels, there was a recursive element in that I would constantly sweep through the two levels at any one time, comparing and refining data.

### **3.4.1.1 Level One: Summarizing and Packaging the Data**

This first level mainly involved coding of the data from interviews and focus groups to generate categories. In addition, it involved summarizing the findings from the observations and document reviews. Data from the interviews and focus group discussions was transcribed verbatim into text. Data from observations of the tutorial groups was generated by means of a checklist. Relevant information was also abstracted from the documents reviewed (i.e. the curriculum and tutor guides). In this context, abstraction implies extracting pieces of information from the documents that were relevant to the subject under study which was feedback. The information extracted from key documents included presence of feedback guidelines for tutors that address the various learning outcomes.

During the phase of coding the interviews and focus group transcripts, the main aim was to first go through the different sets of data individually in order to get a clear understanding and general picture of the information that had been generated. No attempt at this stage was initially made to search for similar patterns or relationships across the data although some preliminary interpretation of the data inevitably did occur. This process commenced before, during and after transcription of the data, and it assisted the researcher to get a general sense and meaning of the information collected. Subsequently, after getting familiar with the data, I began to generate the initial codes. Data from interviews and focus groups was coded and categorized separately. Data from the observations and document reviews was also summarized separately.

Throughout the coding process, I continued re-reading through each data set, paying significant attention to what the data was communicating and sieving through common patterns and relationships within the data. I got deeply immersed with the data, examining it and cognitively moving from descriptive codes to more pattern codes as a means of condensing the data. Flexibility occurred during this process in that, at any one moment, I could go back and forth

modifying the codes to achieve refinement of the data (see section 3.2.1). A code would be identified within a data segment when a complete explicit idea emerged from what the participants were saying or from what was observed. In other words, I was searching for conceptual links from the largely non-structured data collected.

Data was organized into segments of similar information and meaning. These segments were labeled with key words and phrases which became the common initial codes. These key words were highlighted in color. During the process of coding, often, some of the emerging codes became repetitive both within and across the data sets. According to Saldana (2009), this is both natural and deliberate during coding of qualitative data, natural because there exist repetitive patterns of action in human nature and deliberate because the primary goal of the researcher is to identify these repetitive patterns of action within the data.

Having generated the codes and labeled them with key words/phrases, the data still had to be condensed. This was done by re-reading through the raw data alongside the generated codes to ensure that the codes represented what was in the raw data. The next step was to condense the generated codes into categories. I re-read through the generated codes and began the process of relating them to each other. Codes that had similar patterns of meaning were grouped together to generate categories. This then led me into level two of the process. As already mentioned, the observations were targeting specific aspects of the tutor feedback during the tutorial and as such was guided by a checklist that already had pre-determined items to look out for regarding the tutor feedback (see section 3.3.3.4). It has been reported that observations in qualitative research can be conducted following a pre-determined list of items (Asan and Montague, 2014). Following this therefore, data from observations in this study was summarised following the pre-determined items on the checklist. Similarly, it has been reported that information from document reviews can be summarized being guided by pre-defined topics (Bowen, 2009). Bowen (2009), further suggests that this whole process is meant to integrate data gathered by the different methods. In relation to this, the information to look out for in the documents in this study was already known by me (i.e. presence or absence of feedback guidelines that target a multiplicity of outcomes) basing on the interviews and focus groups. Therefore, data obtained from the documents was also summarized along these aspects.



### **3.4.1.2 Level Two: Re-packaging and aggregating the data**

This second level of the analysis process involved aggregating and re-packaging the generated categories from level one into themes and clusters. In this second level, emerging themes and trends across all the data were identified. All the categories that had emerged from level one were first reviewed by myself and constantly compared them to find bigger relationships which resulted in themes and eventually clusters. As the analysis proceeded, I was also busy reflecting upon his position in this whole process. In section 3.4.4, my position in this study is further explained. The final stage of analysis as suggested by Creswell (2005) as well as Miles and Huberman (1994) speaks to the interpretation of findings and building an explanatory framework. In this study, Activity Theory that has been explained (see section 2.6) was used to construct an interpretation framework for the synthesis of the findings that is later presented in Chapter 6.

### **3.4.2 Quality Assurance**

Data was electronically and securely protected by passwords and only accessed by myself. The raw data is to be kept for a minimum period of five years after which it will be destroyed in line with the regulations of Stellenbosch University and Makerere University. I and the participants chose a quiet place to conduct the interviews/focus group discussions. All responses were audio-recorded verbatim. During data analysis, participants were often consulted to validate the emerging themes.

The quality of data in qualitative studies is very important especially due to the nature of data generated (Descombe, 2014; Braun et al., 2014; Belcher and Hirvela, 2005). Unlike in quantitative research where statistics provide tangibility to information collected, such statistical tangibility is absent in the realm of qualitative research. In many quantitative research studies, the key principles strongly emphasized are: reliability, validity and generalizability. These three have been referred to as the holy trinity by Henning (2004). However, in qualitative research, what is emphasized is the use of multiple methods of data generation leading to triangulation. This way, the various propositions and views put forward emerge from multiple data points which then ‘locate a true position’ (Wildy, 2003:120; Denscombe, 1998:85). Therefore, triangulation enhances validity and reliability in qualitative studies (Babbie and Mouton, 2001). In this study, triangulation has been addressed by using multiple points of data generation.

### **3.4.3 Establishing trustworthiness and rigor**

Trustworthiness is a significant feature in qualitative research as it highlights the quality of the study. Since the researcher plays an active role in collecting data and interpreting other peoples' meanings in qualitative research, the research should be trustworthy (Frambach et al., 2013; Thorne et al., 2004; Stake, 1995). Qualitative researchers learn to understand issues the way their participants do rather than impose their own thinking. A trustworthy study should reflect the experiences of participants. Trustworthiness in qualitative research involves the following: credibility, confirmability, dependability and transferability (O'Donnell et al., 2007).

#### **3.4.3.1 Credibility**

Credibility (internal validity) refers to how confident a researcher is with his/her data (O'Donnell et al., 2007). It is analogous to internal validity in quantitative research. For research findings to be credible, they must reflect the experiences of the participants. In this study, credibility was achieved through detailed description of the discussion supported by contextual quotations from the field. Credibility was also achieved through involvement of myself with the participants on more than one occasion, reference to literature sources to draw conclusions and peer debriefing where the research process was constantly guided by my supervisors. Participants were invited to validate emerging themes as a true reflection of their responses (i.e. member checking). For example, the themes were sent out to the students and tutors who participated in the study to give an opinion as to whether their views had been sufficiently represented. In addition, the themes were sent to some leaders in the institution like the Dean and Deputy Dean to read through. The supervisors of the study also read through the emerging codes, categories and themes throughout the research process. It would have been good to invite each participant to read through the transcripts, but this was not possible due to the large volumes of transcribed data, and students had to attend to other learning activities. However, the emerging themes and clusters that had been already aggregated were later sent out to the participating students to check as to whether they represented their views. Out of the twenty-five interviewed students, more than half (twenty students) responded that their views had been satisfactorily captured. The remaining students did not respond despite three reminders at different times. Out of the thirty-five students who participated in the focus group discussions, twenty-five of them responded that their views had been captured, and the rest did not respond. This exercise of sending themes to participants for validation also contributed to the credibility of the findings as has been

reported in previous literature (Krueger and Casey, 2009). Credibility was further achieved through review of my research findings by the supervisors of this research.

### **3.4.3.2 Confirmability**

Confirmability (objectivity) refers to how objective data is and relies on internal characteristics of data collected (Braun and Clarke, 2006). In other words, confirmability aims at reducing subjectivity of findings which is common in qualitative studies due to researcher's assumptions and preconceived ideas about the subject under investigation. It involves constant inquiry and tracing the path of emerging themes to ensure that they are from data collected (Braun and Clarke, 2006). In this study, I achieved confirmability by constantly comparing emerging codes, categories and themes with raw data along with the supervisors of the study. Additionally, the same guiding questions were used to all the student participants in the interviews and focus groups as well as similar guiding questions to all the interviewed tutors.

### **3.4.3.3 Dependability**

Dependability (reliability) in qualitative research refers to reliability of data over time (Polit and Beck, 2009). Dependability can be achieved by two independent researchers scrutinizing data and its conclusions as well as its supporting documentation. In this study, this was achieved by involving the supervisors to scrutinize conclusions and supporting documentation.

### **3.4.3.4 Transferability**

Transferability (external validity) is the replication of a similar study in other settings (Cousin, 2009; Johnson et al., 2007). This is analogous to external validity in quantitative research. Interpretivist qualitative researchers can not necessarily generalize their findings and interpretations to a large population, but only provide adequate, thick and clear descriptions that can assist other researchers to transfer those similar principles in other settings.

In this study, transferability was achieved by detailing every step of the methods used to design the study, participant selection, data gathering as well as the data analysis process and reporting. Transferability was also achieved by providing a detailed description of study findings that can enable other researchers to make decisions about replication of the study in other contexts.

Additionally, the use of multiple cases enriched the findings as they provided more lines of thought that would assist in the transfer of this design to other settings.

#### **3.4.4 Researcher's Position**

In qualitative research, the researcher is the instrument for data generation and analysis (Probst, 2016; Holloway and Wheeler, 2010). Through the research process, a qualitative researcher must recognize that he/she is human and the primary instrument. Subsequently, qualitative researchers need to consider their own bias, limitations, views, experiences and attitudes throughout data collection, analysis, interpretation and reporting of findings. It has been previously reported that in qualitative research, the researcher's bias and views can potentially affect the outcome of the study (Sanjari et al., 2014). In order to enable consumers of qualitative research to evaluate the credibility of findings, qualitative researchers must, as part of their studies, try to eliminate any potential biases, views, feelings etc. by explicitly stating them (Tufford and Newman, 2012; Altheide and Johnson, 1994). For the present study, in the interest of complete disclosure and in trying to prevent unintentional influences on my interpretation of how students experienced and responded to feedback, the discussion below outlines my position as a researcher.

I am an academic member of staff at Makerere Medical School where this study took place. Given the critical role that feedback plays in the learning context of PBL, and in the interest of adopting a reflective approach, I decided to conduct this study. Currently sitting on the Teaching and Learning Committee and actively involved in co-ordinating teaching and learning activities, I have witnessed challenges with the feedback process within the PBL tutorials and he has been part of the team trying to address these challenges. In addition, I have been immersed in the PBL tutorial process ever since he was a student at the very same institution where he also attended PBL tutorials before joining as a faculty member. So even from the past experience, I have knowledge of some challenges faced during feedback process.

The above experiences had the possibility of skewing the generated data towards a certain direction if I had carried them into the research process. However, I tried to shed off all the ideas, conceptions and misconceptions when he started the study. In order to achieve this, I practiced bracketing as well as reflexivity throughout the research process so as to set aside any preconceptions he had about the study subject. Bracketing is the suspension of the researcher's preconceptions, prejudices and beliefs that can interfere with participants' responses (Tufford

and Newman, 2012; Rubin and Rubin, 2005). Reflexivity refers to the researcher's constant reflections of his/her values and beliefs as well as those of the participants and how these can influence data generated (Thomas and Harden, 2008; Leung, 2015; Britten et al., 2002). In this study, my beliefs and values were that students in a PBL learning setting needed comprehensive feedback to guide their learning and that tutors were the vehicle of this feedback. I recognized this and endeavored to approach the research process with minimal reference to these beliefs. I also followed a similar line of inquiry being guided by similar questions for the interviews and focus groups, and the same checklist for all the observations. I also wrote down reflective notes during the research process to ensure reflexivity as well. For example, some of the insights were that feedback received by students was not well constructed to address specific gaps in learning. In addition, being a member of staff, I might have been known to the students which would have brought in power differentials between students and him. I was also seen by students as their mentor and teacher, hence creating an attachment with them. All these could have had potential impact on responses obtained. In order to minimize this, I tried to explain to the students and tutors involved the purpose of the study that it is intended not to castigate anybody, but to improve the PBL learning process. They were thus requested to be as honest as possible. I recognize the fact that it is extremely hard to shed off all these feelings, views, beliefs and misconceptions, but in this study, some mechanisms that have been explained were ensured to minimize these biases.

### **3.5 LIMITATIONS**

This study was qualitative in nature in which I was the instrument in both generating the data and analysis. This has the possibility of introducing researcher subjectivity and bias into the study. Although, effort was made to minimize this bias by shedding off any pre-conceived ideas, this could still present a methodological limitation to this study. In addition, this study used a single case approach in one institution with only third year health professional students. Thus the findings may not be as rich as it would have been with having many institutions involved to evaluate any differences. However, I sought to address this by having rigorous and multiple data generation techniques (triangulation) and by detailing the techniques and methods used in both generating the data and analysis to ensure transferability. In Chapter 7, I further explain the limitations of this study.

### **3.6 ETHICAL CONSIDERATIONS**

The targeted participants were initially provided with an information sheet detailing the purpose of the study as well as addressing any ethical issues (Appendix E). Those willing to participate were later requested to provide written consent before commencement of the interviews and focus group discussions (Appendix H). The language used in the consent process was English. The responses from participants were kept confidential and no participant was identified by name. Refusal to participate was also respected and no prejudice was held against those that opted not to participate in the study. Permission was also obtained from PBL co-ordinator as well as the tutors to carry out the observations of the tutorial sessions.

Data was protected by passwords only accessible to me and not to the rest of the public. The written notes were securely locked in a drawer only accessible to me. Although total anonymity could not be achieved within the interview/discussion room, participants were assured of the confidentiality and anonymity of their responses. There were no risks to either the participants or myself, and the exercise had potential advantages for both students and tutors. For example, the reflection that occurs during interviews and focus groups had a potential advantage of enhancing student learning and tutor practice of giving feedback. Bias was minimized by asking and following the same semi-structured questions as a guide for each participant in the same order. Permission to conduct this study was granted by the Health Research Ethics Committee, Faculty of Medicine and Health Sciences, Stellenbosch University (Protocol number: S15/04/071) as well as the Research and Ethics Committee, School of Medicine, Makerere University (Protocol number: SREC15/02/090).

### **3.7 CONCLUSION**

Chapter 3 has described the research design used to conduct this study as well as my theoretical stance in approaching the study. The interpretive approach employed in the study was described. The chapter also highlighted the justification for the methodological decisions taken. The research design and methods used helped to bring out the experiences of students in receiving and responding to feedback in PBL tutorials. The chapter was concluded with an illumination of the strategies used to ensure trustworthiness and rigor of the findings, as well as ethical issues considered. The next chapter presents the research findings from the study.

## Chapter 4

### FINDINGS: LEVEL ONE ANALYSIS

#### 4.1 INTRODUCTION

The over-arching purpose of the study was to explore health sciences students' experiences of and responses to tutor feedback received within the context of a PBL tutorial. In Chapter 3, it was explained that although the third year students who participated in the study were drawn from five professional disciplines (i.e. medicine, radiography, nursing, pharmacy and dentistry), they attended tutorials together in the various tutorial groups from first year up to the first semester of third year and had similar PBL tasks (see section 3.2.3.1). In addition, the research process of exploring these experiences was described along with a justification of the various methodological decisions made regarding design, data collection as well as data analysis techniques. A detailed description of the data analysis process was also presented (see section 3.4) involving a core phase (i.e. student interviews, focus groups, observations and document reviews) and a follow up phase (tutor interviews). In this chapter, the findings from the level one analysis of the core phase of the study are presented. The framework by Miles and Hubermann (1994) was presented as the one that guided the data reduction process (see section 3.4). According to this framework, level one involves summarizing and packaging data into codes and categories. Thus this chapter presents the various codes and categories that arose from the core phase of the study. Although the findings are presented in a structured manner, this does not suggest in any way that the analysis process was clear-cut or structured. It was rather recursive where processes merged into each other as the analysis proceeded across the different data sets. The process of generating data, analysis, synthesis and drawing of conclusions happened interactively and iteratively. The presented codes and categories from the core phase emerged through analysis of twenty- five interviews, five focus group discussions, observations of the tutorial process and document reviews. For ease of readability, quick visual reference (and to put some organization into the presentation), the findings have been described alongside illustrative tables. The chapter commences with key information on the general study population, and then presents information on the specific participants that took part in the study. A detailed description of how data was categorized for each data set then follows and the chapter concludes with an overall summary.

## 4.2 Information on students and tutors

The students who participated in this study were drawn from the third year cohorts. The tutors were the ones responsible for the tutorial groups involved. Table 4.1 provides a summary description of the third year group of students from whom participants were selected.

**Table 4.1: General description of the students represented in the five tutorial groups that were included in the study**

STUDENTS	NUMBER	DESCRIPTION
<b>Radiography Students</b>	14	Two of these were students that were just upgrading to a degree although majority were high school leavers. They had all been attending tutorial sessions since their first year of study.
<b>Medicine Students</b>	15	The Medicine group has the largest number of students admitted in a single year. This group also had two students who were upgrading to a degree and thirteen students who were direct from high school.
<b>Pharmacy Students</b>	16	One student from this group was just upgrading to a degree and the remaining fifteen were direct from high school.
<b>Nursing Students</b>	15	Twelve of these are females and only three are males. These students had also been using tutorials since their first year. Like with the other groups, there were two students who were upgrading to a degree from a diploma and the remaining thirteen students were direct from high school.
<b>Dentistry Students</b>	14	Unlike the other groups, this group only had students direct from high school and did not have any students who were already qualified with diploma qualifications and were just upgrading to a degree.

The numbers of students presented in the middle column of Table 4.1 show the numbers in each discipline across the five tutorial groups that were involved in the study. The numbers do not represent the total number of students for each discipline in the entire third year (i.e. the whole third year has more than five tutorial groups). Ultimately, five medical students, five nursing students, five radiography students, five pharmacy students and five dentistry students took part in the individual interviews, while six medical students, six nursing students, six radiography students, six pharmacy students and six dentistry students participated in the different focus group discussions.



The different disciplines from which the students were selected have been represented by letters as follows: Medicine (M), Radiography (R), Nursing (N), Dentistry (D) and Pharmacy (P). The capital letters in brackets are used later on for purposes of identification of participants. Tables 4.2 and 4.3 provide a breakdown of the students from the five tutorial groups who participated in the interviews and focus group discussions respectively. For both the interviews and focus group discussions, letter and number codes have been provided to represent the student participants. In the code, each discipline is represented by the first letter. For example, P1M refers to *Participant 1- Medical Student* and FG1 refers to *Focus Group 1*.

**Table 4.2: Breakdown of students across the Individual Interviews**

Participants	Discipline	Participant Code	Gender
Participant 1	Medicine	P1M	Male
Participant 2	Radiography	P2R	Male
Participant 3	Dentistry	P3D	Male
Participant 4	Pharmacy	P4P	Female
Participant 5	Nursing	P5N	Male
Participant 6	Radiography	P6R	Female
Participant 7	Pharmacy	P7P	Female
Participant 8	Dentistry	P8D	Male
Participant 9	Pharmacy	P9P	Male
Participant 10	Dentistry	P10D	Female
Participant 11	Medicine	P11M	Male
Participant 12	Radiography	P12R	Male
Participant 13	Medicine	P13M	Male
Participant 14	Nursing	P14N	Female
Participant 15	Nursing	P15N	Female
Participant 16	Medicine	P16M	Male
Participant 17	Radiography	P17R	Male
Participant 18	Nursing	P18N	Female
Participant 19	Medicine	P19M	Male
Participant 20	Pharmacy	P20P	Male
Participant 21	Pharmacy	P21P	Male
Participant 22	Dentistry	P22D	Male
Participant 23	Nursing	P23N	Female
Participant 24	Radiography	P24R	Male
Participant 25	Dentistry	P25D	Male

The students in Table 4.2 are presented in the order in which they were interviewed. Table 4.3 provides a summary breakdown of participants across the five focus groups. The students who participated in the interviews did not participate in the focus groups. Therefore, since there were twenty-five students for the interviews, the codes allocated to participants in the focus groups

started at participant number twenty-six. These codes are shown in the brackets against each participant.

**Table 4.3: Breakdown of students across the Focus Groups**

<b>Focus Group (FG)</b>	<b>Participant Codes &amp; Gender</b>
<b>FG1</b>	Participant a (P26M)- Male Participant b (P27R)- Male Participant c (P28D)- Male Participant d (P29N)- Female Participant e (P30P)- Male Participant f (P31R)- Female
<b>FG2</b>	Participant a (P32M)- Female Participant b (P33D)- Male Participant c (P34N)- Male Participant d (P35P)- Male Participant e (P36M)- Male Participant f (P37R)- Female
<b>FG3</b>	Participant a (P38D)- Male Participant b (P39D)- Female Participant c (P40R)- Female Participant d (P41M)- Female Participant e (P42N)- Male Participant f (P43P)- Male
<b>FG4</b>	Participant a (P44P)- Male Participant b (P45P)- Male Participant c (P46M)- Male Participant d (P47R)-Female Participant e (P48D)- Male Participant f (P49N)- Female
<b>FG5</b>	Participant a (P50R)- Male Participant b (P51N)- Female Participant c (P52M)- Male Participant d (P53D)- Male Participant e (P54N)- Female Participant f (P55P)- Male

As with the interviews, Table 4.3 represents the order in which the focus group discussions were conducted. Although the male students (19 in number) dominated in the focus groups, there was a fair representation of the female students within each focus group. The dominance of the male students is a reflection of the fact that total enrollment of students at the institution reflects more males than females (56% of the students are males and 44% are females). Overall, there were thirty students who participated in the focus group discussions. Within the five focus groups, each discipline was represented by six students. With twenty-five students participating in the

interviews, there were a total number of fifty-five participants from whom data was collected, each discipline being equally represented by eleven students. The data from student participants was triangulated with data from observations and document reviews. In the next sections, this data is presented. Codes and categories from interviews and focus group discussions are presented separately at this level.

Lastly, though the study majorly focused on students, the tutors of the five tutorial groups were involved in the study to provide further understanding of the experiences that students shared. There were five tutors involved in the study, and these had different expertise. They belonged to the fields of physiology, anatomy, biochemistry, pathology and microbiology. Each tutorial group had one tutor, making it a total of five tutors. All the tutors had received training in facilitating PBL tutorials. There were two female tutors and three male tutors. Two of them had been facilitating tutorials for two years while the remaining tutors had facilitated tutorials for more than five years.

### **4.3 Initial analysis of the student individual interviews**

Data from the first source was from the twenty-five in-depth individual interviews conducted with the students from the five health science disciplines. Although the five interviews from the pilot study had been analysed, they were re-analysed as part of this process. The first step of the analysis process was the open coding exercise conducted by the researcher. This resulted in eighty-one (81) codes from the student individual interviews. These obtained codes were reviewed and then related to each other to identify common patterns. They were then aggregated into twenty-one (21) categories. Table 4.4 below summarizes the categories and related codes. A brief explanation of each category is also given within the table.

**Table 4.4: Summary of categories and related codes from the student interviews**

Categories	Related Codes
<b>Category 1 (C1SI): Feedback related to key concepts</b> This category focused on the extent to which students felt feedback provided them with insight regarding their understanding and explanation of concepts and integration of these concepts.	Explaining issues Elaborating ideas Providing further information Providing additional views
<b>Category 2 (C2SI): Feedback on the use of prior knowledge.</b> This category related to the extent to which feedback facilitated students to use previously learned knowledge and apply it to solve a current PBL task.	Applying past material Recalling past knowledge No reference to past knowledge Assisted in remembering past content Assisted in triggering memory Helped to think about previous work Assisted in triggering memory
<b>Category 3 (C3SI): Feedback and promotion of active discussion.</b> This category was about the role that feedback played in assisting students to engage in active discussion within the tutorial process.	Identifying learning issues Elaborating ideas Active discussion in tutorial Elaborating ideas Participation in tutorial
<b>Category 4 (C4SI): Feedback related to role specification.</b> The focus of this was the role feedback played in specifying the roles of the students and the tutor in the tutorial discussion.	Assigning duties in tutorial Assigning responsibilities Distributing activities in tutorial
<b>Category 5 (C5SI): Learning gaps</b> This category was about the extent to which feedback assisted students to identify learning gaps.	Weak points Limitations in knowledge Areas for improvement Knowledge gaps
<b>Category 6 (C6SI): Knowledge construction process.</b> The focus of this category was the extent to which feedback helped students to acquire new knowledge through the process of sharing ideas.	Articulation of views Airing out ideas Voicing opinions Providing alternative thinking
<b>Category 7 (C7SI): Feedback related to resolving disagreements.</b> This category relates to the degree by which feedback assisted students to reach a consensus when faced with differing views.	Addressing disagreements Addressing different views Handling conflicting opinions
<b>Category 8 (C8SI): Feedback and time management.</b> The manner in which feedback focused on aspects that students needed to consider in	Observing time Sticking to set time lines Finishing on schedule

order to keep time and perform the required tasks on time was the focus of this category.	
<b>Category 9 (C9SI): Perceived limited knowledge of tutor.</b>  This category focused on what the students thought about the tutor and hence their perception of feedback from that tutor.	Comments are different Tutors giving contrasting comments Non-uniformity of comments Non-knowledgeable tutors Limited tutor knowledge Variation of comments Tutor not knowing subject content
<b>Category 10 (C10SI): De-linking feedback from outcomes &amp; prior knowledge.</b>  This category related to the extent by which tutor feedback related previous information to current learning objectives.	Relation of comments to past content Relating comment to objectives Relating comments to learning outcomes
<b>Category 11 (C11SI): Language of feedback.</b>  The extent to which the tutor feedback was framed so that it can be easily comprehended by the students was the focus of this category.	Ambiguous comments Using hard words Using complicated words Medical jargon Using unfamiliar words Using difficult phrases Using unfamiliar terms
<b>Category 12 (C12SI): Individualization of feedback.</b>  The focus of this category was the way in which feedback was delivered and targeted to individual students as opposed to a group of students in general.	Targeting individual students Benefiting individual students Comments directed to particular students
<b>Category 13 (C13SI): Tutor participation.</b>  This category relates to the way in which students received and responded to feedback from tutors whom they perceived as either having actively or passively participated in the tutorial process.	Use of non-content experts Tutor involvement in discussion Tutor participation Tutor interest in discussion
<b>Category 14 (C14SI): Recalling past knowledge.</b>  The extent to which tutor feedback assisted students to remember previous information was the focus of this category.	Recalling what was learnt Remembering previous cases
<b>Category 15 (C15SI): Linking known concepts.</b>  This category related focused on the extent to which feedback was used by students to relate different concepts in a learning task.	Relating concepts Finding relationships between concepts Forming concept maps
<b>Category 16 (C16SI): Appraising self</b>  This category related was about the manner in which tutor feedback encouraged students to evaluate their own performance in the tutorial discussion.	Self-evaluation Thinking about one's performance

<b>Category 17 (C17SI): Discovering strengths</b> This focused on the role of feedback in assisting students to discover their positive areas.	Finding out learning strengths Pointing out good areas Finding out learning strengths
<b>Category 18 (C18SI): Discovering gaps</b> This category focused on the extent to which tutor feedback facilitated students to identify areas that need improvement.	Finding out gaps Pointing out areas for improvement Finding out gaps Weaknesses
<b>Category 19 (C19SI): Identifying objectives</b> This category was about the extent to which feedback assisted students to focus and identify key discussion issues in the PBL task.	Identifying learning issues Identifying discussion issues
<b>Category 20 (C20SI): Forming of learning schedules.</b> The focus of this category was the extent to which tutor feedback assisted students to become self-directed and independent learners.	Planning one's own learning Forming objectives Scheduling one's own learning Forming action learning plan
<b>Category 21 (C21SI): Tutorial group dynamics</b> This category related to the factors that would influence having a cohesive PBL group during the discussions.	Need to know each other Creating rapport Creating a conducive discussion environment. Need to know roles

During the coding process, it was discovered that some codes could fit into different categories, and often some of them were repetitive. Similarly, it was discovered that some categories had some degree of similarity. These observations have been reported to be normal during coding in qualitative research (Merriam, 2009). At this stage, it was important to avoid loss of any significant information. This repetitive nature within the data was eliminated during level two analysis where related categories were aggregated together. The selection of codes and categories were reviewed and discussed with the two supervisors to this study. In order to facilitate an easy and smooth audit trail of the data, each category was coded with letters and a number where for example C1SI refers to *Category 1 Student Interview*. Later on during level two of the analysis process, I describe and indicate how these many categories were eventually grouped into over-arching themes. The aim of this analysis was to search for students' views, experiences and perceptions of the feedback received from the PBL tutors as well as the feedback process itself as reported within the interview data. Therefore, all the categories relate to tutor feedback within a PBL tutorial context.

The wide range of experiences as can be inferred from the categories in Table 4.4 provides some insight into the students' perceptions regarding feedback as it occurs within a PBL tutorial. From the categories above, one can deduce some key issues. First, there is a demonstration of the students' awareness to recognize limitations of tutor feedback across several domains. This was demonstrated for example through the students' responses that related to the fact that tutor feedback was limited in evaluating their competency in problem evaluation, synthesis, discussion, integration and relation of the learning task with previous knowledge. One can also point out to some positive experiences of the students. For example, students were able to use tutor feedback to formulate their own learning objectives and schedules/strategies as well as to monitor, control and evaluate their own learning. Furthermore, from the categories in Table 4.4, it can be seen that the student experiences and use of feedback seemed to have been influenced by a variety of factors which were linked to the tutor, the tutorial context as well as to their own cognitive processes.

#### **4.4 Initial analysis of the student focus group discussions**

The second set of data was the focus group discussions. The aim of the focus group discussions was to triangulate the data generated. The focus group discussions presented a divergent set of responses, some of which reflected what had already been found in the individual interviews. As was done for the interviews, the audio-recordings of each focus group were listened to and the focus group transcripts were read to get a clear picture of the meaning of the various responses. The data from the first focus group (i.e. the pilot study) was also re-visited.

As was the case with the individual interviews, initial units of meaning were generated from the focus group data that were labeled as codes. In total ninety-four (94) codes were generated from focus group data. These codes were again related to each other to generate bigger units of meaning that were labeled categories. In total, twenty-three (23) categories were generated from the codes of the focus group data. Table 4.5 below summarizes the codes and emergent categories from the focus groups. Once again, for ease of reference and for a smooth audit trail, I coded each category with letters and a number where for example C1FD refers to *Category 1 Focus Group Discussion*.



**Table 4.5: Summary of categories and related codes from the student focus groups**

<b>Categories</b>	<b>Related Codes</b>
<b>Category 1 (C1FD): Learning gaps.</b> This category related focused on the extent to which tutor feedback assisted students to identify and learning gaps.	Weak points Knowledge deficit Unresolved aspects Inconclusive areas
<b>Category 2 (C2FD): Knowledge construction process.</b> The focus of this category was about the manner in which feedback assisted students to learn new information in the discussion.	Understanding issues Synthesizing issues Concept mapping
<b>Category 3 (C3FD): Group Organization.</b> This category related to how students perceived the organization of the tutorial group during the feedback process.	Creating group order Maintaining group order Organizing group
<b>Category 4 (C4FD): Creating rapport.</b> The focus of this category related to the extent to which there was a relaxing environment during the feedback process. It related to aspects like how well members in the group got to know each other.	Knowing peers Knowing each other Familiarizing with colleagues Knowing each other in the group
<b>Category 5 (C5FD): Differing feedback.</b> This category speaks to the extent to which tutor feedback targeted different learning outcomes in the various groups. It highlights that feedback often differed amongst the tutors.	Varying tutor comments Different tutor comments Different focus of comments from tutors Tutors focusing on different aspects
<b>Category 6 (C6FD): Feedback on communication skills.</b> This category focused on the extent to which tutor feedback addressed student acquisition of communication skills.	Little feedback on expression Little feedback on articulating ideas Received limited feedback on listening to others Limited feedback on non-verbal expressions
<b>Category 7 (C7FD): Team work and collaborative learning.</b> This category focused on how students perceived the feedback received regarding learning as a team.	Working together in a group Learning from each other Assisting each other Learning from peers Resolving issues together
<b>Category 8 (C8FD): Feedback and time management.</b> The focus of this category was about students' perception of feedback regarding the acquisition of time management skills.	Beating deadlines Finishing tutorial on time Addressing objectives in set time Finishing tutorial on time Sticking to schedules Sticking to schedules Finishing tutorial on time
<b>Category 9 (C9FD): Leadership and management skills.</b>	Performance of group chairperson Performance of group scribe



The extent to which students received feedback regarding their leadership skills was the focus of this category.	
<b>Category 10 (C10FD): Resolving conflicts.</b> This related to students` perception of tutor feedback in as far as targeting the conflict resolution skills was concerned.	Handling conflicting ideas Handling dissenting views Different opinions Alternative thinking
<b>Category 11 (C11FD): Reflective ability.</b> This category focused on the extent to which students` perceived and responded to feedback regarding their acquisition of reflective skills about their performance.	Thinking about own performance Thinking about discussed issues Looking back at tutorial process
<b>Category 12 (C12FD): Unspecific feedback.</b> This related to students` perception of the focus of tutor feedback.	General tutor comments Feedback was broad Feedback addressing many issues Message is too general
<b>Category 13 (C13FD): Gender stereotyping.</b> This category related to students` perceptions regarding to tutor feedback targeting specific genders in the tutorial.	Comments targeting females Comments targeting males Gender insensitive comments Belittling girls Criticizing boys Blaming boys Gender sensitive comments
<b>Category 14 (C14FD): Tutor communication skills.</b> This category related to the communication skills of the tutor when delivering the feedback to students including how clear the feedback was.	Tutor talking in slow tone Confusing comments Difficult to understand comments Facial expressions Non-verbal communication
<b>Category 15 (C15FD): Tutor-student relationship.</b> This category focused on the extent to which the relationship between the tutor and students influenced students` response to feedback.	Tutor distancing himself from students Showing disinterest in students No friendly relationship with students Angry towards students Reprimanding Tough tutor Friendly Interacted well
<b>Category 16 (C16FD): Remembering.</b> The focus of this was category was about how feedback assisted students to recall prior knowledge.	Recalling previous work Engaging memory Recall past concepts Using prior knowledge
<b>Category 17 (C17FD): Critiquing own performance.</b> This related to the manner in which feedback assisted students to evaluate their own performance regarding the task.	Evaluating own contribution Assessing own discussion Question own ideas
<b>Category 18 (C18FD): Self-evaluation.</b> This category focused on the role of feedback in assisting students to make an overall	Assisted in self- appraisal Assisted judgment of participation

judgment regarding performance in the tutorial.	
<b>Category 19 (C19FD): Identification of weaknesses.</b> This related to the extent to which feedback assisted students to search for learning gaps.	Identifying areas for improvement Searching for areas to improve Identify weak aspects
<b>Category 20 (C20FD): Self-directed learning.</b> The focus of this category was on the extent to which feedback promoted independent learning practices.	Assisted in self- study Encouraged to learn by self Feedback was reference point during own research
<b>Category 21 (C21FD): Monitoring of learning</b> The extent to which feedback assisted students to track their own learning as well as modify learning approaches to achieve learning outcomes was the focus of this category.	Following up own learning Tracking own learning Modify learning techniques Discovering information errors Addressing errors
<b>Category 22 (C22FD): Searching for knowledge.</b> This category related to the extent to which tutor feedback assisted students to look for and choose appropriate learning resources.	Assisted in identifying information sources Searching for information Identify knowledgeable resource persons Search for necessary text books
<b>Category 23 (C23FD): Variations in tutor comments</b> This also related to the extent to which tutor feedback reflected differences.	Comments not the same Each tutor concentrating on different aspects Varying focus of feedback

Some codes in the focus groups could probably fit into different categories, and sometimes seemed to be repetitive. However, at this point, I did not want to lose any useful information from the responses of the focus group discussions. The repetition was later eliminated in the subsequent level of analysis. The supervisors of this study again were additional reviewers of the categories that emerged. The categories in Table 4.5 from the focus groups discussions still highlight the experiences of students with facilitator feedback in a PBL tutorial setting. One can recognize the fact that some codes and categories that were observed within the focus group discussions were also reflected within the individual interview data categories (Tables 4.4 and 4.5). This has been reported to be common in qualitative research (Merriam, 2009), and is meant to ensure that findings from the different data sources do re-enforce each other (Charmaz, 2006). As was with the interview data, the categories from focus groups show that students felt that the feedback received was not enough to sufficiently address their level of prior knowledge, reflective ability, how they analyzed the learning task and linked up concepts. Importantly, from the categories presented in Table 4.5, it can be observed that tutor feedback also influenced

student learning positively. For example, students felt that the feedback assisted them to evaluate, control and monitor their learning as well as guide them in their self-independent study.

The focus group discussions revealed some key aspects on feedback which were not explicit within the interviews. For example, students felt that tutor feedback was not specific and also the target of that feedback often differed across tutors. Secondly, one can also observe that students were aware of the various outcomes besides knowledge on which they felt that they had received limited feedback. Some of these outcomes included conflict resolution, team work and leadership. This highlights the fact that most likely, the students were expecting to receive feedback regarding these outcomes. The categories from the focus groups also reflect the students' awareness and sensitivity towards collaborative learning.

Lastly, one can tentatively infer from Table 4.5 that students' experiences of feedback were influenced by both tutor factors as well as systemic process factors. For example, tutor factors include poor communication skills and poor tutor-student relationship. Systemic process factors relate to their sense of a lack of feedback guidelines and poor management of group dynamics during the feedback process. These aspects are further explored in Chapter 6.

## **4.5 Key findings from the observations**

The observations of the feedback delivery process in the tutorial groups provided an opportunity for me to gather contextual information in real-time. The observations were captured in action as the feedback process proceeded in the five PBL tutorial groups that were included in the study. This was done by use of a checklist (Appendix D). The observations provided an opportunity for me to witness feedback practice for himself rather than being told by the students. This additional data source complemented the findings obtained from the individual interviews and focus group discussions. The findings from the observations often reflected and confirmed some of the findings seen within the individual interviews and focus group discussions. Findings from the observations are summarized in Table 4.6.

**Table 4.6: Summary of key observations made**

<b>Tutorial contextual factors that seemed to influence response to feedback</b>	
<p><b>1. <u>Group cohesion</u></b></p> <p>This related to the organization of the PBL group and how the discussion proceeded amongst the members of the group. The way in which the group got organized seemed to influence response to feedback.</p>	<p>I observed that:</p> <ul style="list-style-type: none"> <li>-There were random interruptions during discussions by the students.</li> <li>-Group members were sometimes conflicting with varying opinions on a similar issue.</li> <li>-Discussions sometimes became emotional</li> <li>-Angry tones were sometime used.</li> </ul> <p>In some tutorial groups for example, the discussion often resulted into an uncontrolled debate with random views being said until the tutor came in to calm the students down.</p>
<p><b>2. <u>Unclear guidelines</u></b></p> <p>This observation related to presence of steps followed when giving feedback.</p>	<p>It was observed that there were variations in the targeted outcomes of tutor feedback. For example, some tutors concentrated more on cognitive knowledge while others gave feedback on other outcomes such as student communication skills</p>
<p><b>3. <u>Unspecific roles</u></b></p> <p>This observation focused on the extent to which students seemed to be aware of their role and the role of the tutor in the feedback process.</p>	<p>I observed that:</p> <ul style="list-style-type: none"> <li>-Students appeared not to clearly know the role of the tutor in the feedback process. For example, some students wanted the tutor to give them answers to solve the task as part of the feedback.</li> <li>-Students appeared not to be sure on how they should respond to feedback</li> </ul>
<b>Tutor-related factors that appeared to influence student response to feedback</b>	
<p><b>4. <u>Random feedback</u></b></p> <p>This observation related to the timing of the feedback from the tutor during the tutorial process.</p>	<p>I observed that:</p> <ul style="list-style-type: none"> <li>-The tutor would deliver feedback at any time during discussions</li> <li>-The tutor allowed students to respond instantly to the feedback delivered. To illustrate this, some of the tutors often interrupted the discussion to give feedback without allowing students to finish a discussion line of an issue.</li> </ul>
<p><b>5. <u>Participation</u></b></p> <p>This particular observation related to the extent to which the tutor feedback addressed the issue of student active participation in the tutorial (i.e. how well the student was involved in the discussion)</p>	<p>I observed that some students would ask the tutor to comment on how well they were engaged in the discussion and remained active through the process. This can be illustrated by the fact that some students requested the tutor to talk about how active they were in the tutorial and how they can improve the next time. Some tutors did not give this information until the students requested.</p>

<p><b>6. <u>Focus of the feedback</u></b></p> <p>This observation focused on the extent to which tutors in the five PBL groups had variations regarding the focus of their feedback to students.</p>	<p>I observed that:</p> <ul style="list-style-type: none"> <li>-Tutors in the different tutorial groups often focused their feedback on different attributes.</li> <li>-Some tutors delivered feedback on a wide number of attributes compared to others.</li> <li>-Some tutors mainly concentrated on giving feedback regarding content while others gave feedback on other attributes besides cognitive content:</li> </ul> <p>To illustrate this, in two PBL groups, the tutors` feedback mainly focused on how well students understood concepts and met the intended learning objectives, while in the remaining three groups, the tutors` feedback did not only focus on how well students met the objectives, but also how well they performed in the communication of ideas, relating with each other and accommodating each other`s views. One tutor commented about the students` time management skills and how well they finished the tutorial session in the scheduled time.</p>
<p><b>7. <u>Quantity of feedback</u></b></p> <p>This observation related to the amount of comments given by the tutor during the feedback process. These at times appeared to be too many at any one given time.</p>	<p>It was observed that:</p> <ul style="list-style-type: none"> <li>-Tutors often delivered too many feedback comments within a short period of time</li> <li>-Tutors often talked about many different aspects of the learning in a single feedback message and often used hard terminologies. For example, some of the terms used during feedback were being heard for the first time by the students and the tutors often talked about many gaps to be addressed by the students without giving them some time to comprehend the information.</li> </ul>

From Table 4.6, it can be seen that some of the aspects observed during the feedback process resonated through the interviews and focus group discussions. These include experiences of feedback on other attributes besides knowledge such as communication and interpersonal skills, as well as unclear role specification during the feedback process. This further points to the fact that the information reflected in the interviews and focus groups is to some extent a reflection of what actually happens in the tutorial sessions. The findings from the observations also reflect two salient features. First, was the fact that students at times appeared to have received much feedback comments from tutors within a short period of time. This speaks to the issue of cognitive load from the tutor feedback as explained in Chapter 2, and this is later on explained further in chapter seven. In addition, findings seem to reflect a systemic challenge in the

organization of the group during the feedback process where students appear not to exactly know their role in the feedback process as well as procedures of handling dissenting views.

## 4.6 Key findings from the document reviews

The document reviews complemented data from the other sources, in a bid to further triangulate the data. Reviews were conducted on two types of documents namely; the curriculum documents and the PBL tutor guides. Document reviews were specifically carried out in an effort of trying to further understand some of the findings that were emerging from the other data sources. Emerging information from interviews, focus groups and observations appeared to suggest that tutor feedback did not adequately target a number of outcomes besides knowledge. Such attributes included: communication skills, team work, participation, leadership and management, interpersonal skills and collaborative learning. Therefore, this prompted me to review the above documents to specifically check as to whether these documents contained reference to these outcomes. Table 4.7 below summarizes the key findings from the review of the above documents.

**Table 4.7: Summary of the key findings from document reviews  
(Curriculum documents and Tutor guides)**

<p><b><u>Focus of curriculum documents</u></b></p> <p>This focused on the extent to which the curriculum documents had documentation of the various outcomes meant to be acquired within a PBL tutorial setting.</p>	<ul style="list-style-type: none"> <li>-The curriculum documents had a range of different attributes outlined to be acquired within a PBL tutorial setting (i.e. knowledge, communication skills, interpersonal skills, team work and collaborative learning, leadership, time management, conflict resolution, reflection, social disposition, participation).</li> <li>-The curriculum also emphasized that PBL tutorials was one way through which many of the above attributes will be acquired by the students.</li> <li>-The curriculum documents also had a documentation of the various course modules that included content of each module, expected outcomes, teaching and assessment methods</li> </ul>
<p><b><u>Focus of the tutor guides</u></b></p> <p>This related to what aspects the tutor guides</p>	<ul style="list-style-type: none"> <li>-The tutor guides had well outlined knowledge outcomes including content and</li> </ul>

<p>contained since these guides are used by tutors to facilitate the tutorial.</p>	<p>the intended learning objectives for each PBL case/task.</p> <ul style="list-style-type: none"> <li>-The tutor guides also contained a list of learning issues and concepts that students are supposed to bring out when discussing a particular PBL case.</li> <li>-There were also reference material that tutors can direct students to during self-directed study</li> <li>-However, the tutor guides lacked an explicit mention of other outcomes besides knowledge such as communication, interpersonal skills, team work, leadership, time management, conflict resolution, collaborative learning. The emphasis was mainly cognitive knowledge</li> </ul>
<p><b><u>Feedback guidelines</u></b></p> <p>This specifically related to whether there were specific guidelines for tutors when giving feedback during PBL tutorials.</p>	<p>I found out from the reviewed documents that tutors did not have documented guidelines for delivering feedback during student PBL tutorial discussions that targets all the mentioned outcomes meant to be acquired in the tutorials</p>

The document review was meant to provide a context within which some of the findings obtained from the other sources could be understood and perhaps explained. There are two key aspects that should be noted from Table 4.7. One is the misalignment between the curriculum and the tutor guide. The curriculum explicitly outlines a range of many outcomes to be acquired within a PBL tutorial. However, the tutor guide appears limited in terms of guiding the tutors on how to deliver feedback on all the learning outcomes in a PBL setting. The tutor guides largely concentrated on outlining the subject content (i.e. cognitive attribute) and was silent on the other non-cognitive attributes. Appendix M is an example of an extract from a curriculum and Appendix N is an extract from a tutor guide.

## 4.7 Conclusion

In this chapter, I have presented codes and categories that emerged from level one analysis of the core phase of the study. As described earlier in Chapter 3, this core phase involved analysis of data from student interviews, focus group discussions, observations and document reviews, including data from the pilot study. The analysis of data at this level (i.e. Level one) was done separately for each data set. This thus completes level one analysis according to the Miles and Hubermann (1994) framework that I followed. In the next chapter, I present the findings from the second level of the analysis process of the core phase of the study (i.e. Level two of the Miles and Hubermann framework).



## CHAPTER 5

### FINDINGS: LEVEL TWO ANALYSIS

#### 5.1 INTRODUCTION

In Chapter 4, I presented findings from level one analysis of the core phase of the study. This chapter presents findings from level two of the analysis process. Following on Miles and Huberman's framework (1994), this was done by searching for categories that were related to each other across the interviews and focus groups, and aggregating such categories into descriptive themes. The key data from the observations and document reviews was summarized as previously shown in Tables 4.6 and 4.7. The categories from the individual interviews and focus group discussions were simultaneously compared and contrasted. The generated categories were first summarized under a single matrix (Appendix L). This matrix was not only significant in maintaining an audit trail of emerging findings from the data, but also made the process of comparison easier. The matrix was sent out by e-mail to the students who participated in the study to give comments and to ensure that their views had been represented. Thirty students responded to the e-mail and confirmed that the categories represented their experiences. The categories were also sent out to some of the leaders in the faculty to act as peer reviewers. These included the Dean, Deputy Dean and the Education Co-ordinator. During comparison, categories of similar meaning and those that were repetitive, were grouped together into bigger patterns of meaning. Each bigger pattern was labeled with an over-arching descriptive word or phrase, and this subsequently became the theme. From this process, the original forty-four categories (i.e. 21 from student interviews and 23 from student focus groups) were aggregated into ten themes. Table 5.1 summarizes these themes and their related categories. To maintain an audit trail of the data, I have maintained the number and letter codes for each category.



**Table 5.1: Summary of the themes and related categories**

Theme	Related Categories
<b>1. Focus of feedback: Cognitive domain</b> This theme is related to tutor feedback regarding the cognitive outcomes.	C1SI. Feedback related to key concepts C2SI.Feedback on use of prior knowledge C3SI.Feedback and promotion of active discussion C5SI & C1FD.Learning gaps C6SI & C2FD.Knowledge construction process
<b>2. Focus of feedback: Non-cognitive domain</b> This theme speaks to tutor feedback that is related to non-cognitive outcomes.	C7SI. Feedback related to resolving disagreements C8SI & C8FD.Feedback and time management C6FD.Feedback on communication skills C7FD.Team work and collaborative learning C9FD.Leadership and management skills C10FD.Resolving conflicts C11FD.Reflective ability
<b>3. Variation in feedback</b> This theme is about the extent to which feedback from the tutors targeted different outcomes.	C5FD. Differing feedback C23FD. Variations in tutor comments
<b>4. Student cognitive factors</b> This theme relates to student internal cognitive factors that influenced their response to tutor feedback.	C9SI.Perceived limited knowledge of tutor C10SI.De-linking feedback from outcomes & prior knowledge C11SI. Language of feedback C12FD. Unspecific feedback
<b>5. Tutorial socio-contextual factors</b> This theme is about contextual factors within the tutorial that influenced student response to tutor feedback.	C14FD.Tutor communication skills C15FD.Tutor-student relationship C12SI. Individualization of feedback C13SI.Tutor participation C13FD.Gender stereotyping
<b>6. Activation of prior knowledge</b> This theme relates to how students used feedback to activate previous knowledge.	C14SI.Recalling past knowledge C16FD. Remembering C15SI.Linking known concepts
<b>7. Reflection</b> This theme is about how students used tutor feedback to engage in reflection in their learning.	C17SI.Discovering strengths C18SI. Discovering gaps C17FD.Critiquing own performance C18FD.Self evaluation C19FD.Identification of weaknesses C16SI.Appraising self
<b>8. Self-regulated learning</b> This speaks to the ways in which students used tutor feedback to direct their own learning.	C20SI.Forming of learning schedules C19SI.Identifying objectives C20FD.Self-directed learning C21FD. Monitoring of learning C22FD.Searching for knowledge
<b>9. Tutorial group formation</b> This theme is about tutorial group dynamics that affected the feedback process.	C21SI. Tutorial group dynamics C3FD.Group organization
<b>10. Improving the process</b> This theme speaks to aspects that were identified as necessary to improve the feedback process.	C4FD.Creating rapport C4SI.Feedback related to role specification

The themes generated in Table 5.1 were finally organized under four cluster groups, each cluster group representing related themes. Table 5.2 below summarizes the eventual four cluster groups and the related themes.

**Table 5.2: Summary of the eventual clusters and related themes**

<b>Clusters</b>	<b>Related Themes</b>
<b>A. Focus and nature of Feedback</b> This cluster is generally about the various outcomes that tutor feedback focused on as experienced by the students.	<b>Theme A1:</b> Cognitive domain <b>Theme A2:</b> Non-cognitive domain <b>Theme A3:</b> Variation in feedback
<b>B. Factors influencing response to feedback</b> This cluster is about the factors that influenced students' response to tutor feedback.	<b>Theme B1:</b> Student cognitive factors <b>Theme B2:</b> Tutorial socio-contextual factors
<b>C. Use of Feedback</b> This cluster relates to the ways in which students positively utilized tutor feedback in their learning.	<b>Theme C1:</b> Activation of prior knowledge <b>Theme C2:</b> Reflection <b>Theme C3:</b> Self-regulated learning
<b>D. The Feedback Process</b> This cluster speaks to the dynamics of the tutorial group and how to improve the feedback process in such a group.	<b>Theme D1:</b> Tutorial group formation <b>Theme D2:</b> Improving the process

The naming of the themes and clusters was guided by both theories that guided the study (see section 2.5) as well as data that emerged from the research process. Indeed, it has been reported that “knowledge of the theory that frames the inquiry seeps into the process at this stage” (Henning, 2004: 105). For clarity between clusters and themes as later presented in this chapter, each cluster was allocated a letter code and the corresponding themes were allocated a letter and a number code (see Table 5.2). As noted earlier in Chapter 4, the whole analysis process that led to the final themes and clusters was recursive in nature. Therefore, even after finally arriving at the themes and clusters, the raw data was re-visited and reviewed for refinement, validation, error correction, omissions and identification of key field direct quotations that could support the themes.

The presentation of the clusters and the themes in this chapter has been organized around the clusters. A description is given about each cluster and related themes supported by direct quotations from the participants. The quotations have been presented verbatim. Although there

were many responses, the participant responses presented were the ones that best described and contextualized each theme. Occasionally, my own interpretation of the data intersperses the descriptions to prepare the reader for a detailed synthesis and interpretation that follows in the next chapter<sup>2</sup>.

## **5.2 Cluster A: Focus and nature of feedback**

This cluster is about the students' experiences of the focus and nature of tutor feedback delivered to them. One could see through the responses that the common denominator under this particular cluster related to the fact that the feedback given to the students seemed to focus majorly on knowledge acquisition, and in particular the mastery of subject content. This was described in all interviews and focus groups with no major variations in experiences and opinions of the students. There were two aspects regarding what the students said. The first one was that facilitator feedback regarding the learning and knowledge acquisition process was limited, and the second aspect being that there was limited facilitator feedback across a multiplicity of other attributes besides knowledge acquisition. Deeper analysis of data also revealed that there were some variations in the tutor feedback received by students across tutorial groups. Three major themes related to students' experiences of tutor feedback emerged under this cluster namely: A1) Cognitive domain, A2) Non-cognitive domain, and A3) Variation in feedback. These three themes and related categories are summarized in Table 5.3.

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<sup>2</sup> Kindly note that components of this work have been published in peer-reviewed journals

**Table 5.3: Themes related to Cluster A**

Theme	Related Categories
<b>A1. Cognitive domain</b>	C1SI. Feedback related to key concepts C2SI.Feedback on use of prior knowledge C3SI.Feedback and promotion of active discussion C5SI & C1FD.Learning gaps C6SI & C2FD.Knowledge construction process
<b>A2. Non-cognitive domain</b>	C7SI. Feedback related to resolving disagreements C8SI & C8FD.Feedback and time management C6FD.Feedback on communication skills C7FD.Team work and collaborative learning C9FD.Leadership and management skills C10FD.Resolving conflicts C11FD.Reflective ability
<b>A3. Variation in feedback</b>	C5FD. Differing feedback C23FD. Variations in tutor comments

Each of the above three themes is described below along with direct representative quotations from the participants.

### 5.2.1 Theme A1: Cognitive domain

This theme presents the students' experiences of the tutor feedback regarding the knowledge attribute or knowledge acquisition within the tutorial group. Students seemed to be aware of the fact that facilitator feedback on knowledge and the learning process was limited. All students who participated in the study expressed concern that although PBL facilitators delivered feedback regarding their mastery of the subject content, they were of the opinion that this feedback was not comprehensive enough and only addressed the issue of whether they had achieved the intended learning objectives. This can be observed in the responses below:

*“Most tutors only tell you whether you have addressed the content and derived the intended learning objectives or not...it would be good if we got feedback from different angles such as how good our prior knowledge was regarding the problem.”* [P8D]

*“The practice I have observed is that many tutors just tell us if we have derived our learning objectives correctly and addressed most of the content and that is it.”* [P16M]

Although feedback regarding achievement of the intended learning objectives is significant, the students' responses showed that there is probably a need to go beyond this. For example, they were of the opinion that facilitator feedback was not extensive regarding their whole learning and knowledge acquisition process. The key aspects where tutor feedback was reported as being limited included: ability to analyze and synthesize the problem, comprehension of key concepts in the problem, relation of concepts to previous knowledge and learning outcomes. This can be observed in the illustrative quotes below:

*“I think my colleagues can agree with me that some tutors try to give us good feedback. However, I feel something is lacking.....the feedback is not enough to help us learn.....for example, we need to know how much our knowledge contributed to solving the problem, how well we have identified our learning gaps and how well we have generally understood and explained the concepts in the problem..., not just telling us that we have formed the correct objectives.”* [FG2]

*“I noted that the PBL tutors ignore giving us feedback on some aspects such as our initial understanding of technical issues in the problem and how well we have discussed them.....I would advise that facilitators also give us feedback regarding our understanding of the main concepts in the problem and knowledge gaps identified.”* [P2R]

From the responses above, the inherent message is that students received limited feedback regarding the various aspects involved in the learning process and specifically, knowledge acquisition. One can further infer that students implicitly suggested getting more elaborate feedback on the different aspects involved in the knowledge construction process as already mentioned above. This therefore is a clear reflection of the students' engagement in meta-learning and meta-cognition where they were aware of their learning process as well as their learning needs. They thus desired feedback on the various aspects involved in learning.

### **5.2.2 Theme A2: Non-cognitive domain**

This theme describes the students' experiences of tutor feedback regarding acquisition of other attributes besides knowledge within the tutorial. From the findings, tutor feedback on this aspect was also limited. Often, PBL tutorial facilitators mostly concentrated on giving feedback regarding the knowledge attribute. The facilitators either did not give or gave limited feedback on other non-cognitive attributes outside knowledge. This concern was not only dominant in all the interviews and focus groups conducted, but also overtly noticeable during observations of

the feedback process in the tutorials. Once again, students seemed to be aware of the existence of the other attributes besides knowledge that are supposed to be acquired within the tutorial. For example, they reported receiving limited feedback on non-cognitive attributes such as communication skills, participation, team work, collaborative learning, reflective ability and time management, maintenance of group dynamics, leadership ability and interpersonal skills. The following responses support this:

*“During our orientation to PBL, we were told that besides content knowledge, we shall learn other aspects like communication skills, interpersonal skills, time management, leadership and working as a team in our tutorials. However, none of my tutors has given me feedback regarding these within the tutorial.” [P11M]*

*“Much as we were assured that a PBL tutorial is an avenue for learning other skills like time management and collaborative learning besides knowledge, our tutors give us feedback on only knowledge gaps. I do not know how am fairing in those other skills.” [P4P]*

In a PBL tutorial setting, non-cognitive attributes seem to be very crucial in facilitating the collaborative learning process where students learn how to learn from each other, how to create social relationships for learning and also appreciate divergent opinions and manage conflicting ideas. However, tutor feedback regarding their acquisition of these attributes seemed to be limited. This can be observed in the following illustrative response:

*“As students, we have come to appreciate that in a PBL group, we can learn how to discuss with colleagues and learn from one another, how to relate to people with different opinions and we have done our best to practice these. However, I do not know whether we are good in these or need to improve....my tutor for example never mentions these softer skills apart from the hardcore medical content.” [P14N]*

There seemed to be an initially high expectation from the side of students regarding receiving feedback on non-cognitive attributes during tutorials that would help them become complete professionals. However, the limited tutor feedback in this area seemed to have affected the students, and possibly their learning negatively. This can be observed in the following quote from a participant from one focus group:

*“In our first year, we got excited after listening to the new method of learning called PBL. The tutorials were initially exciting because we thought that being complete professionals, we needed to learn things like effective communication and expressing oneself, leadership skills,*

*time management, collaborative learning, group work and enhance our leadership potential. Indeed we were assured that lecturers will always guide us and inform us how well we are achieving these skills....I guess the feedback was aimed at this as well. However, down the road, we hardly receive feedback on these skills as most lecturers tend to emphasize only content....that initial excitement has slowly, but surely died out.” [FG4]*

Observations of the feedback process in action within the tutorial groups reflected the above observations from the students. In some of the tutorial groups observed, the tutors majorly delivered more comprehensive feedback on how well students had understood the problem and derived the intended institutional learning objectives [Observation from Tutorial Groups 3 and 5]. It is only in one tutorial group in which the facilitator tried to inform students to be more active in their participation and to keep time [Observation from Tutorial Group 2]. However, even the aspects of time management and participation probably needed to be demystified as some students were observed asking for clarification from the tutor what he/she exactly meant [Observation from Tutorial Group 1]. In some other tutorial groups, the facilitator simply thanked students for participating in the discussion without elaborating [Observation from Tutorial Groups 2 and 4]. Therefore, from the student responses above, it is clear that the focus of the tutor feedback was mostly on the knowledge attribute.

### **5.2.3 Theme A3: Variation in feedback**

From the students’ responses, the focus of the feedback given by the tutors appeared to vary from group to group. Tutor feedback in one tutorial group would for instance focus on many different attributes compared to tutor feedback in another tutorial group which seemed to focus on a single attribute. For example, while some tutors endeavored to give some feedback on both acquisition of content (knowledge domain) as well as some aspects of non-cognitive domains, the other tutors would only concentrate on delivering feedback regarding learning of content. The following responses illustrate this:

*“I have rarely received comments from my tutor regarding my communication skills during the last semester....however my new tutor gives some comments regarding our communication skills.” [P18N]*

*“During the first course unit, the tutor would give us feedback regarding our mastery of the subject, but the new tutor we have tries to give some feedback on how we kept time during the tutorial.” [P16M]*



Even within the knowledge domain, one could still notice some differences in the feedback message and the students seemed to be aware of this because they often compared feedback received whenever they got new tutors or when they changed tutorial groups. These comments related more to the extent of the feedback received within this domain. The following response from one participant in focus group 3 attests to this:

*“While the tutors in the first year would give us extensive comments on how we tackled the problem and utilized our prior knowledge to solve it, the tutors I encountered in second year would simply tell us if we were on the right track or not.” [FG3]*

From the above findings, it can be seen that there was some degree of a lack of standardization of the focus feedback delivered within PBL tutorials. This finding can be linked to what was observed in the previous two themes (A1 and A2) regarding limited tutor feedback on both knowledge construction and acquisition of non-cognitive attributes.

### 5.3 Cluster B: Factors influencing response to feedback

This cluster relates to the key factors that influenced students’ responses to tutor feedback. These factors, which were found to be both cognitive as well as socio-contextual, have been presented under themes B1 and B2. The two themes and the related categories are summarized in Table 5.4.

**Table 5.4: Themes related to Cluster B**

Theme	Related Categories
<b>B1. Student cognitive factors</b>	C9SI.Perceived limited knowledge of tutor C10SI.De-linking feedback from outcomes & prior knowledge C11SI. Language of feedback C12FD. Unspecific feedback
<b>B2. Tutorial socio-contextual factors</b>	C14FD.Tutor communication skills C15FD.Tutor-student relationship C12SI. Individualization of feedback C13SI.Tutor participation C13FD.Gender stereotyping

Each of the above themes is described separately with key field responses in the sections.



### 5.3.1 Theme B1: Student cognitive factors

Participants in the study were influenced by cognitive factors in responding and effectively utilizing feedback to enhance their learning. The following section describes the key cognitive factors that were identified.

#### 5.3.1.1 Cognitive Load

As described in Chapter 2, there are multiple factors that can influence students' response to feedback. A common thread in literature relates to what is described as *cognitive load* where too much information given to learners in form of feedback at any one time can result into overworking their memory and thus inhibit learning (see section 2.4.2). Similarly in this study, the majority of the students expressed the concern that the facilitators provided too much feedback information in many situations and gave them limited time to comprehend the information. This was also evident in all the five focus group discussions conducted. The following responses were representative of this observation:

*"I appreciate feedback is good, but giving us too much information is not only frustrating, but also de-motivates many of us to use it to improve our learning..."* [P2R]

*"There was at times too many comments from the tutors which many times ended up confusing us....the tutor comments should be limited to allow us understand what is being said."* [P4P]

*"We [sic] really felt that the tutors gave out too much information at once. We [sic] only wish that they could be giving out little bits of information at any one time as this helps us comprehend them better."* [FG2]

Although a few students did not overtly complain about cognitive load, their responses implicitly demonstrated the effects of cognitive load due to excessive feedback information from the tutors. This can be seen from the response below:

*"The too much feedback given to us was sometimes good because it allowed me to look at so many aspects pointed out by the tutor...however, my brain would at times switch off as it became unbearable....this was worse in situations when the presented problem was difficult to understand."* [P1M]

From the above responses, one can recognize the fact that as a result of the tutor feedback, students had to put in considerable mental effort to synthesize the feedback with their working

memory. This perhaps resulted in extraneous cognitive load since this mental effort was being induced by the tutor feedback, thus this type of cognitive load is initiated by an external factor, in this case the external factor being tutor feedback. As described in Chapter 2, extraneous cognitive load would arise as a result of the manner in which a teacher presents information to learners (see section 2.4.2). Subsequently, instructors such as tutors have the ability to control this kind of load which was evident in this study. A deeper interrogation of the previous response from the medicine student brings in another angle of thought. One can discern from this response that though some students probably liked the many feedback comments, this indirectly resulted into extraneous cognitive load as well. Secondly, this response also reflects the existence of intrinsic cognitive load (see section 2.5.1). This is reflected in the last section of the response relating to level of difficulty of the learning task. Overall, it can be concluded from the findings that too much feedback information from the tutor sometimes resulted into extraneous cognitive load and this became worse if there was some inherent intrinsic cognitive load as well. These aspects are discussed further in Chapter 6.

### 5.3.1.2 Unspecific feedback

Another key factor reported in literature that could potentially influence students' use of feedback relates to the specificity of feedback, where feedback is clearly framed and focused to address a particular issue (see section 2.4.2). In this study, the majority of the students reported that feedback received was sometimes not clearly targeting a specific aspect in their learning that needed attention. The following responses reflected this:

*"In all the tutorials I have attended, the feedback from my facilitator seemed not to be focused....too much generalization leaving me wondering what particular aspects I did well and where exactly I need to improve...I just ignored such feedback after the tutorial."* [P7 P]

*"I think my colleagues can bear me witness, our tutors do not focus their feedback to those areas where they think we need to work harder. They surely know these areas, but they tend to give us too much general comments without targeting those areas."* [FG3]

The responses above demonstrate the importance of specific feedback in learning. Delivering too much information that is not focused to particular strengths and weaknesses might not assist students to learn as can be observed from the responses. Specific feedback requires tutors to exactly state what the student has done well and where improvement is needed (see section 2.4.2). From the responses above, there is evidence of lack of specific feedback on the side of

the tutors. From the findings, it is also clear that probably much of the tutor feedback was on the personal and task level such as the tutor commenting how well the students handled the problem. Such non-specific feedback could potentially be ineffective especially when tutors use vague praise or reprimand.

### 5.3.1.3 Perceived limited knowledge of the tutor

There was a perception among many students that some tutors seemed to lack knowledge of the subject content during tutorials, so the students did not take their feedback seriously to use it to facilitate learning. The responses below captured this perception:

*“We [sic] really think some of our facilitators are not content experts and you can see this during the tutorial. When you seek for clarification, they seem not to know.....for such a facilitator, we cannot take his feedback seriously. I think my classmates can support on this”.* [FG1]

*“Some facilitators tell us from the beginning of the tutorial that they are not content experts in the problem we are handling....surely no student can trust feedback from such a facilitator to inform their learning.”* [P8D]

From the responses, it is evident that there was a general perception from students that tutors who are not subject experts cannot deliver useful feedback to enhance their learning and this may lead to students ignoring feedback from such facilitators. In addition, the above observations continue to highlight the issue of content experts versus non-content experts to facilitate PBL tutorial sessions. However, there was a notable variation on deeper interrogation of the data. A few of the interviewed students stated that tutor knowledge did not negatively affect their response to feedback received. The following responses captured this:

*“Some facilitators evidently lacked adequate knowledge of the content, but delivered optimum feedback. Their lack of knowledge did not significantly prevent me from learning in the tutorial using the few tips they told us.”* [P12R]

*“Although I noticed that some PBL facilitators were not comfortable with the subject content especially when delivering feedback on content, they had some useful tips and their limitations in knowledge in some areas did not affect me much, but helped me to recall previous knowledge and also search for more to build on what I already knew.”* [P15N]

The above two responses (i.e. from P12R and P15N) were from students who had previous diploma qualifications and were just upgrading to a degree. From the responses, there seems to be a positive observation from the students. Although, responses generally portray that some PBL facilitators were perceived as lacking mastery of the subject content, they also unravel another finding that students with previous experience in the field (i.e. P12R and P15N) did not find this factor to be of significant influence in their response to tutor feedback compared to direct entrants, the high school leavers.

#### **5.3.1.4 Linking feedback to prior knowledge and outcomes**

Effective feedback needs to relate previous learning experiences to what learners are expected to know in a presented learning task (see section 2.4.2). From this study, it was found out from the students that often, tutors did not link their feedback comments to students' prior knowledge and to the intended learning outcomes. This possibly affected students' use of feedback received. The following responses were typical:

*“I would appreciate the feedback more if it recognizes what I already know and shows me how what I already know can be linked to what I should know and what the lecturers expect me to know...there, I can use it to further improve my learning.”* [P14N]

*“In many cases, I failed to effectively fit in my mind the feedback received from my facilitator because it often failed to connect what I already knew to what I need to know in order to achieve what was intended by the problem. Simply telling me my learning gaps without connecting those gaps to what I already know and what I should know is not very effective.”* [P13M]

Learning objectives or outcomes are often set to ensure that the students' learning journey is purposeful. Through this journey, the link between what students already know to that which they ought to know is very important. This link can potentially be achieved through provision of feedback. Thus, feedback bridges the gap between learning objectives and previous knowledge. The above two responses (i.e. P14N and P13M) were from students who had previous experience in the field and were just upgrading to a degree. Such responses were not dominant amongst the students direct from high school, and so students with previous experience were perhaps expecting more feedback owing to their wealth of previously learned knowledge. From these responses, there seemed to be a disconnection between what students already knew and what they were supposed to know from the learning task. From the last response (P13M), it can be seen that feedback would be helpful to students to modify their learning strategies towards

achieving the desired goal. The fact that students with previous qualifications and experience in the field were able to identify this needs to be noted. This particular issue is explained further in the next chapter.

### 5.3.1.5 Language of feedback

As discussed in Chapter 2, the language used to frame feedback can potentially influence the way in which that feedback is received and utilized by recipients (see section 2.4.2). Feedback that is framed using difficult and ambiguous words is much less effective compared to feedback framed in simple clear words. Similarly in this study, the aspect of language used by PBL tutors to deliver feedback was prominently expressed by all students. The tutors often used language that made it difficult for students to effectively use the feedback. With language of feedback, it is implied that at times, facilitators used complicated technical words that were evidently unclear to students. Sometimes, tutors used medical jargon to frame their feedback which was also confusing to students. The following responses reflect this:

*“Although we appreciate that we are medical students, facilitators need to use simple words when giving us feedback. Using complicated medical words and phrases without explaining them to us is a waste of time ...because they do not help us learn.”* [P9P]

*“In many situations, tutors use hard medical terminologies which we do not understand...maybe they should use simpler words to explain some of the issues at hand.”* [FG4]

During the observations, I noted that the tutors would use technical terms such as *biodistribution* and *pharmacokinetics* that seemed unfamiliar to the students. After the students requesting for clarification, the tutor would then explain the concepts with some examples that appeared familiar to the students [Observation from Tutorial Group 3].

This observation reveals that, what the tutor was delivering as feedback was possibly confusing the students since hard medical terms were used. In reality, the tutor perhaps had to use these exact terms so that students get to know them. However, the concepts seemed new to them and as such needed to be explained using alternative simpler words, which the tutors eventually did. Therefore, from the above findings, one can recognize the difficulty of language used by the tutor to deliver feedback appeared to be a major influence. In situations where feedback contained complex words, phrases and terminologies that were not easily understood by the students, such feedback tended to perhaps be ignored. In fact, it is likely that the complex words used by the tutor apparently increased the difficulty of the learning task thus resulting into

intrinsic cognitive load. Although it may not have been the goal, this complex feedback actually seemed to affect learning negatively.

### **5.3.2 Theme B2: Tutorial socio-contextual factors**

This theme describes factors within the tutorial learning environment that seemed to influence students' experiences and response to tutor feedback. It was found out in this study that contextual factors within a PBL tutorial setting, but outside the students' internal cognitive processes, also seemed to influence response to tutor feedback. The next section describes the key contextual factors that were identified.

#### **5.3.2.1 Tutor communication skills**

Literature on PBL is replete with accounts of the importance of effective communication between the facilitator and learners in a tutorial group setting (Wirkala and Kuhn, 2011; Strobel and van Barneveld, 2009). The influence of tutor communication skills was prominent in all interviews and focus groups conducted. Communication skills were regarded as a social factor because it seemed to dwell more on how friendly the tutor was while delivering the feedback. Although feedback may have been framed well, the manner in which it was communicated to students featured as an important factor.

It was reported that often, some facilitators were not loud enough to reach out to students and appeared to lack confidence when communicating the feedback message. Like it was described in Chapter 3, the tutorial groups have about 10-12 students in a small room and thus tutors do not need microphones. Therefore, the idea of not being loud cannot possibly be due to lack of such logistics. In some situations, students felt that they were able to read non-verbal facial expressions of the facilitator, and this seemed to affect the manner in which feedback from that tutor was received as well. For example, in situations where the tutor looked scary and angry when delivering feedback, the students stated that such feedback was neither well received nor subsequently used.

Occasionally, feedback was framed in a way that had the possibility of impeding the learning process. This was noted especially for negative feedback that explicitly seemed to castigate students' low levels of knowledge. The major observation was that often, facilitators failed to

package this negative feedback in a positive way. The following responses provide support for the above observations regarding facilitator communication skills:

*“As a student, I keep learning. Rudely pointing out my mistakes in an angry tone and using strong words by the tutorial facilitator just scares me away from learning...treat us like future colleagues.”* [P10D]

*“Many facilitators may actually be good, but they do not know how to communicate their feedback. I think a good communicator needs to find out whether the students have received the intended message and have understood it. Many of them do not do this besides lacking confidence and looking very scary and disinterested when talking to us...How do you expect me to use that feedback to learn?”* [P6R]

From the researcher observations of the tutorial sessions in action, the issues described from the student responses above were evident. During the observations, in one tutorial group for example, the tutor said that he was not impressed with the students since they could not explain basic concepts. This tutor indeed was visibly angry with the students before telling them to go and read more [Observation from Tutorial Group 5]. These findings reflect the fact that effective communication skills of the tutor could potentially play a significant role in how students receive and use facilitator feedback especially in a social learning group like a PBL tutorial group. This should alert PBL facilitators to be aware of this when delivering feedback. In this context, communication skills need to be viewed broadly to not only refer to explaining the issues, but also include other aspects such as how the information is packaged as well as expression of the tutor.

### **5.3.2.2 Relationship between tutors and students**

The type of academic relationship between the tutor and the students appeared to be a key factor as well. This came out in all interviews and focus group discussions. Deeper synthesis of the data revealed that students were perhaps seeking for some kind of mentor-mentee relationship with the tutors, which was not realized. From the student responses, some tutors appeared to have related well with students and students seemed to pick up interest in their feedback as compared to those tutors whom students felt that they did not have such a mentor-mentee relationship with. The following responses were typical:



*“I think the facilitator should be part of the tutorial and a friend to the students. Some facilitators do act like soldiers and create fear amongst students. As students, we punish such people by not listening to their feedback.” [P2R]*

*“I have observed that facilitators who relate well with students often give feedback that every student yearns for. Some of them behave like fathers and mothers to us, so we take their feedback seriously.” [FG4]*

Although, the personality of the tutor may play a role in how such a tutor is perceived, the aspect of tutor relationship with students remains a strong factor in influencing students to use their feedback. From the responses one can possibly infer that students are more likely to effectively use feedback from a facilitator who is friendly and relates well with them.

### **5.3.2.3 Participation of the tutors in the tutorial process**

Findings also demonstrated that students positively responded to feedback from tutors whom they perceived to have been actively engaged and participated in their tutorial discussions. Students seemed to have keenly taken note of tutors who actively participated and demonstrated interest in their discussion. The feedback from tutors who were perceived to be inactive and disengaged from the tutorial process was ignored as illustrated by the following responses.

*“In a number of tutorials, the tutor seemed to be disinterested in our discussion....reading newspapers most of the time...feedback from such a facilitator at the end of the tutorial is not useful... if he has not been paying attention, what is he commenting about?” [P4P]*

*“In many cases, facilitators just keep quiet, are busy with their phones or keep moving out of the tutorial to attend to other matters...we cannot take their feedback seriously because they clearly lack an active presence in our discussions.” [FG1]*

From the above responses, it appears that students are aware that tutors are supposed to actively participate in the tutorial process so that they stay connected with the issues being discussed. They can then deliver quality feedback regarding student performance. Therefore, students are always watching to identify active and passive tutors.



### 5.3.2.4 Gender issues

The aspect of gender was also raised. This manifested in form of comments from tutors that were perceived to be directed towards either females or males. Some of these comments were perceived to be offending to some students. From the responses, students who felt offended by such gender sensitive comments often switched off and never took feedback from that particular facilitator seriously. The majority of the students who expressed this were female. The following quotations highlight this aspect:

*“In one of my tutorials, there was a facilitator who openly said that he liked boys more than girls because they are naturally more confident in the discussion. This put off many of the girls including myself and whatever feedback that facilitator gave, the damage had already been created. We ignored all his information.” [P5N]*

*“When a facilitator says that he has a bias towards females because they are always emotional even during arguments within a tutorial discussion, we cannot take such a facilitator seriously because of such misconceptions. Even feedback from him could be biased not objective.” [FG2]*

Despite the fact that gender related comments appeared to mostly affect the female students, the gender factor was also raised by some male students. For example:

*“In one tutorial group, the facilitator used to say that boys are naturally aggressive and always want to be told what they want to hear. This means that the facilitator will never tell the boys the truth if they do not want to hear it. How can I consume feedback from such a facilitator? [P7P]*

Once again, one needs to perhaps contextualize the above responses to a PBL tutorial setting where there is a potential to develop stronger learning relationships between tutors and students compared to other situations like the traditional didactic lectures where there is typically less interaction. Such a PBL context may thus have various factors that can affect the learning activity. Being gender sensitive and avoiding some gender-related comments is one such factor. It is reflected in the responses above that the fact that the tutor was not sensitive enough to the different genders in the tutorials when making certain statements, the resultant feedback was often looked at in a negative way.

### 5.3.2.5 Individualized feedback in the tutorial

In this study, students also felt that within a PBL group, directing feedback towards a particular student in the presence of peers seemed to affect the way in which they reacted and responded to that feedback. The key concern appeared to have been with negative feedback. Feedback that specifically pointed out weaknesses seemed to cause embarrassment to the students in front of peers. The following responses were typical of this:

*“Some feedback is just too personal and when it is not so good may embarrass a student amongst his or her classmates. It would be good for such feedback to be given to an individual student and not in the presence of colleagues.” [P3D]*

*“Pointing out areas of weakness is good, but doing it in front of our colleagues is embarrassing. Sometimes this causes one to be ridiculed by other students that we do not know which demotivates our learning. I think the facilitators should deliver feedback to the whole group without mentioning individual student names within the tutorial...they can then summon the individual students after the tutorial in their offices to deliver the very personal feedback. Surely I cannot use that feedback that has caused me embarrassment and ridicule.” [FG5]*

On the contrary, feedback that was perceived to be positive by the students raised no issues and students actually appeared to have welcomed it. This can be seen from the response below:

*“I felt good when the tutor identified my strong points and he even encouraged me to keep it up...he suggested ways of how I should maintain and I felt nice to even read more.. [P7P]*

From these findings, it can be seen that delivering feedback to individual students is not a bad idea, but doing it in the context of a PBL social learning group is likely to have consequences on student motivation to learn especially when such feedback only points out weaknesses. It is likely that students who receive especially negative feedback in the presence of peers will be affected in their learning due to fear of shame and embarrassment. From the last response, one can note that students are likely to get motivated by positive feedback even within a group setting. Therefore, even seemingly negative feedback can perhaps be framed in a way that is not so openly negative, but motivates students to use it and learn.

## 5.4 Cluster C: Use of feedback

This cluster relates to the ways in which students utilized tutor feedback in their learning process and the likely long term impact of tutor feedback. Unlike in the previously described themes, the themes in this cluster seem to reflect positive responses from the students regarding the use of tutor feedback. Most of these responses reflected the positive learning effects of feedback. Deeper synthesis of the data revealed that tutor feedback appeared to have stimulated students to engage in meta-cognition and meta-learning. It was noted that these meta-cognitive processes seemed to have played a crucial role in not only elaboration of knowledge, but also in the construction of new knowledge by the students. Three key themes were identified namely: C1) Activation of prior knowledge, C2) Reflection and C3) Self-regulated learning. These themes are summarized in the Table 5.5.

**Table 5.5: Themes related to Cluster C**

Theme	Categories
<b>C1. Activation of prior knowledge</b>	C14SI.Recalling past knowledge C16FD. Remembering C15SI.Linking known concepts
<b>C2. Reflection</b>	C17SI.Discovering strengths C18SI. Discovering gaps C17FD.Critiquing own performance C18FD.Self evaluation C19FD.Identificaton of weaknesses C16SI.Appraising self
<b>C3. Self-regulated learning</b>	C20SI.Forming of learning schedules C19SI.Identifying objectives C20FD.Self-directed learning C21FD. Monitoring of learning C22FD.Searching for knowledge

### 5.4.1 Theme C1: Activation of prior knowledge

Students reported using tutor feedback to activate prior knowledge through recalling what they knew about the learning task from accumulated previous learning experiences. This recall of past knowledge appeared to have assisted students in encoding new information and integrating it with already existing knowledge. The following responses were typical of this:

*“I always used feedback from my tutor to try and link up the concepts that I already knew from my high school to the current problem and to solve the learning tasks given to me....” [P 9P]*

*“Many PBL cases especially in first year were actually related to our high school concepts....even second year cases were related to first year cases. We therefore had to recall most of that data....the tutor feedback was vital in this recall process because the tutor would give us trigger responses and questions which enabled to recall the already learnt information....” [FG5]*

From the responses, one can deduce that activation of already known knowledge is an important step in the learning process as it can facilitate in solving a current learning task. The responses further reveal that feedback can be potentially useful in achieving this. For example, feedback in form of triggers and challenging observations, comments and questions in a PBL tutorial, enabled students to recall already acquired information from previous experiences and apply it to solve a current learning task and thus formulate new knowledge.

#### **5.4.2 Theme C2: Reflection**

Reflection is an important component in learning (Hattie, 2009; also see section 2.5.1). From this study, tutor feedback seemed to be significant in engaging students to reflect upon their own performance. This reflective ability seemed to center around using tutor feedback to engage in self-appraisal regarding accomplishment of the learning task, discovering strengths and identifying learning gaps which still needed to be addressed. The following responses were a common thread:

*“I think the beauty with our PBL tutorial feedback is that it engages one to appraise oneself regarding mastery of the concepts in the tutorial problem. Personally, I used to find it hard to internally evaluate myself objectively. With tutor feedback, it is easy for me to use those comments, look at what he said I did well and what I did not do well.....and this pushes me to work even harder to cover my gaps.” [P6R]*

*“We have always been told of becoming reflective professionals in future. We as students have observed that feedback from our tutors during PBL tutorials is one potential way in which we can learn how to think about our work, performance and how we can improve....sort of self-appraisal.” [P1M]*

The above findings illustrate how tutor feedback can potentially promote reflective practice. Feedback played a crucial role in enabling students to look back upon their learning experience

in the tutorial and engage in self-appraisal regarding performance, identifying both strengths and areas that needed improvement. This practice of looking back and evaluating oneself appeared to be an integral part of their positive experiences of tutor feedback in facilitating their learning.

### 5.4.3 Theme C3: Self-regulated Learning

This theme speaks to the value of tutor feedback in enhancing students' ability to direct and monitor their own learning. This appeared to have been achieved through the students' ability to use the feedback to identify learning gaps, transform these gaps into learning objectives and eventually form their own learning plans. The learning objectives seemed to eventually guide their self-study to discover new information. The feedback also seemed to have assisted the students to identify key knowledge sources to get information that would address the learning objectives. These aspects that seemed to have been enhanced by tutor feedback, form the basis of self-regulated learning (see section 2.4.4). The following responses contextualize this:

*"The comments from my tutors always assist me to identify gaps in my knowledge and how to address them.....such gaps become my study objectives which assisted me to do my self-study."* [P12R]

*"To me, the tutor feedback assisted me to identify my knowledge gaps and this gave me an opportunity to plan on how to discover that knowledge and where to get it from by myself without the tutor presence later on. Most likely without such feedback, my learning would not have been directed effectively."* [P11M]

The findings demonstrate the student ability to engage in self-regulation as a result of tutor feedback received. This was manifested for example in situations where tutor feedback assisted students to monitor their own performance and knowledge acquisition, identify any false or wrong information, correct it to get the right information or even adjust their learning styles to enhance their learning. Thus, tutor feedback was possibly utilized by students as a reference standard for their own learning. The responses below further illustrate the aspect of evaluating performance and adjusting learning strategies which are also key components of self-regulated learning:

*"What the tutor feedback assisted me in was to understand that I initially had wrong information and had to modify my knowledge sources to get the right information about the presented problem."* [P4P]

*“The tutor feedback always kept me on my toes in knowing whether I was on the right track. I thus monitored my own progress and in some instances had to modify my methods of learning so that I get the best quality information from authentic sources.” [FG2]*

In summary, one can deduce that despite the challenges that students experienced regarding tutor feedback, there were also significantly positive effects of the feedback that were experienced by the students.

## 5.5 Cluster D: The Feedback Process

Although the feedback message delivered is important and often the most talked about, the process through which recipients get that message is equally crucial (Van Dijk and Kluger, 2011). Whilst the previous themes have focused on students' experiences of the feedback message, this last cluster relates to the process of delivering that message (i.e. the feedback process). It was discovered from this study that the process resulting into the feedback was equally crucial in shaping students' experiences. In a PBL tutorial setting, this process even gets more significant because feedback is delivered to a group of learners rather than an individual. Students' experiences of the feedback delivery process were grouped into two major themes namely: D1) Tutorial group formation and D2) Improving the Process. Table 5.6 summarizes the themes and each theme is later described.

**Table 5.6: Themes related to Cluster D**

Theme	Related Categories
<b>D1. Tutorial group formation</b>	C21SI. Tutorial group dynamics C3FD. Group organization
<b>D2. Improving the Process</b>	C4FD. Creating rapport C4SI. Feedback related to role specification

### 5.5.1 Theme D1: Tutorial group formation

This particular theme relates to student experiences of the organization of the process of feedback delivery, specifically the lack of guiding rules or steps during the process. Although, feedback is crucial in PBL, the process of delivering that feedback to students needs to be organized and managed efficiently by the tutors. Savery (2006) reported that having some ground rules for this process can help since a PBL group is a community of learning. In this

study, students reported that they were not informed of any rules or procedures to follow during the feedback process. The following quotations captured the message in this theme:

*“... when does the tutor give us feedback...is it during the discussion or we have to wait till the end of the tutorial...we need to have some rules and procedures to follow...currently we just talk as if it is a market place.” [P1M]*

*“The tutor feedback is a good idea. However, I do not know what to expect from the tutor. It would be good if the tutor informed us from the beginning what the feedback would involve so that we know in advance and organize ourselves. At the moment.....the process looks disorganized and may be developing steps to guide the process would help...like it is with the tutorial steps.” [P7P]*

Reviewing the relevant documents (i.e. the curriculum and tutor guides), there were no guidelines regarding this aspect, thus affirming the student responses. From these responses, one can infer that there seemed to be a lack of procedures or steps to follow during the feedback process. For example, students perhaps wanted to have steps outlined that govern the feedback process as can be deduced from the last response above.

In addition, from the observations made, I also noted that there was a lack of rules and procedures to follow during the feedback process. The lack of procedures/rules during the feedback process can be illustrated with two separate scenarios. First, the tutors often interrupted the student discussions and gave comments at random at any time during the discussions [Observation from Tutorial Group 2]. Whilst giving feedback immediately is a good practice, it may potentially become ineffective if that feedback interrupts a line of discourse without letting the student to complete his or her argument. This may subsequently result into loss of an important idea as can be illustrated from the quote below:

*“Although comments are good, the tutor needs to wait and give them after I have discussed my point without interruption....then the comments will be more comprehensive after listening to my overall argument.” [FG4]*

Second, students also seemed not to know whether to respond to the tutor feedback immediately within the tutorial or just note it down for future reference. This can be inferred from the response below:

*“Some tutors never wanted us to respond to their feedback and simply wanted us to take notes and refer to it later....while others allowed us to respond immediately to clarify some issues.....maybe we need steps to guide us during this process.....” [P5N]*

In a PBL setting, formation of a highly effective tutorial learning group is essential. This is not just putting students together, but involves the tutor ensuring that such group of students work as a team in this group (Hmelo-Silver and Eberbach, 2012). From this study, student responses echoed certain characteristics of group formation that in a way influenced their experiences of the feedback process. The common denominators within the responses were: creation of rapport amongst group members, getting to know each other and forming a cohesive group. The following response can contextualize this aspect:

*“I think one important thing is for the tutor to ensure that members in the group are united and there is a brotherly bond and good social relationships between them and the tutor....otherwise there was sometimes disunity and some mistrust of the feedback from the tutor....” [P2R]*

Despite the negative experiences, students reported some positive experiences regarding the tutorial group organization as reflected in the following response:

*“I appreciate some of the tutors because they try to ensure that we get to know each other by in the tutorial and remove any tension that may exist....this helps us to have an organized group for effective learning....” [P16M]*

In summary, one can observe the potential of utilizing Activity Theory (see section 2.6) to organize effective feedback processes in PBL settings. A PBL tutorial group is a community of learning and key issues noted in the above responses and observations need to be taken care of. Later on in Chapter 6 that follows, Activity Theory has been applied as a frame within which these findings can be positioned to further enhance our understanding of the role of feedback in the PBL process.

### **5.5.2 Theme D2: Improving the Process**

Within the reported student experiences of the feedback process, one could see the suggestions for improving the process filtering through. The common suggestions identified included: the need for PBL tutors to create rapport at the beginning of the discussion, create clear guidelines



to follow when delivering feedback including what to focus on, and stating clear roles for all players in the feedback process (i.e. the tutor and students). The following responses illustrate this:

*“I think at the beginning of each tutorial, tutors need to ensure that students get to know each other and create rapport and comradeship so as to feel at home. This removes the fear we may have as we view ourselves as colleagues in the group without anything to fear even when you receive a bad comment from the tutor.”* [FG3]

*“I did not know my exact role in this whole feedback process as a student.....was I supposed to just keep quiet and listen to what the tutor is saying or I was supposed to respond to those comments? I suggest that our roles are made clear at the beginning of the tutorial”* [P5N]

In the same vein as was seen in theme D1, the above suggestions for improving the feedback process can be incorporated within an activity theory framework. Students also appeared to demonstrate an awareness of social group dynamics within a community of learning like the PBL group, and therefore the need to create some form of guidelines to steer the feedback process. This can be seen in the response below:

*“Like we have the tutorial steps written down and pinned up for all of us to see, I suggest our tutors should write down procedures to follow when giving feedback and roles of students and tutors in the process so that we pin them up as well for easy reminder...in a group where there are many students learning together, some form of rules are needed to maintain order, unlike a situation where it is a one on one interaction between a tutor and one student.”* [P13M]

In summary, most of the key student experiences of the feedback process appear to be socio-contextual in nature, thus one cannot separate feedback delivery from the contextual environment in which it is taking place.

There were significant findings from the student interviews, focus groups, observations and document reviews regarding tutor feedback. These have been presented. However, having obtained these findings, it became apparent to me that the tutors’ voice was needed to provide more context, further understanding and more explanations of the earlier findings . In the next section, the findings from the tutors who were interviewed to provide more clarification are presented.

## 5.6 The Tutors' Voice

The voice of the tutors was sought to enrich the findings and obtain further understanding of the students' responses as well as the observations made. The five tutors had received prior training in facilitating a PBL tutorial as well as training in feedback delivery. As was the case with the student responses, responses from the tutors were also audio-recorded, transcribed into text and the analysis process commenced immediately after the first transcription. The coding process described in Chapter 3 was followed, resulting into fifteen categories. The fifteen categories were subsequently aggregated into two major themes namely: Opportunities from feedback and challenges in the feedback process. Table 5.7 provides a summary of the key themes and related categories from the tutor interviews.

**Table 5.7: Themes and related categories from tutor interviews**

Theme	Related Categories
<b>Theme 1: Opportunities from feedback</b>	<p>Tutors recognized that the feedback has the following potential advantages:</p> <ul style="list-style-type: none"> <li>-Provides the students` with an indication of knowledge gained in real-time</li> <li>-Demonstration of learning strengths to students</li> <li>-Demonstration of learning gaps to students</li> <li>-Evaluation of students` communication &amp; interpersonal skills</li> <li>-Evaluation of team work in a social group</li> <li>-Evaluation of time management skills of students</li> <li>-Assessment of conflict resolution skills of students</li> <li>-Stimulation of reflective thinking of students</li> <li>-Stimulation of self-directed learning strategies for students</li> </ul>
<b>Theme 2: Challenges in the feedback process</b>	<p>Tutors also reported the following issues with the feedback process:</p> <ul style="list-style-type: none"> <li>-Limited focus of the feedback</li> <li>-Too many targeted outcomes</li> <li>-Time constraints when delivering feedback on required outcomes</li> <li>-Tutor subjectivity</li> <li>-Variations in tutor experiences</li> <li>-Inadequate of institutional guidance</li> </ul>

Findings from tutors as can be seen from Table 5.7 demonstrates that the feedback had some key advantages. Some of the advantages expressed by tutors, such as the use of feedback to stimulate reflection and facilitate self-directed learning also resonated through the students' responses (see

section 5.4.2). Most importantly, one can deduce from the table that tutors acknowledged the fact that the process to deliver feedback in real-time targeting other outcomes besides knowledge such as communication, time management and conflict resolution skills.

Despite the advantages, one can observe systemic challenges within the feedback process. This can be illustrated by the fact that the challenges expressed by the tutors were also expressed in the interviews and focus group discussions with the students. Some of these challenges were also prevalent during the tutorial group observations as well as in the findings from the document reviews. For example, the students reported that they received limited feedback on many outcomes. Although tutors seemed to agree, they seemed to attribute this to limited time available as well as having too many outcomes to address. Additionally, the inadequate institutional guidance pointed out by the tutors is in agreement with what was found out in the document reviews, where I discovered that tutor guides had limited guidance on feedback delivery. Each of the themes in Table 5.7 is further explored in the next sections along with key illustrative responses from the tutors.

### **5.6.1 Theme 1: Opportunities from the feedback process**

All the tutors expressed that the feedback process as it is conducted in a PBL tutorial context had numerous opportunities and positive outcomes. The most prominent being the opportunity to provide feedback across many outcomes desired of a health professional which may not be possible outside a PBL tutorial for example a lecture. The following responses demonstrated this thinking:

*“Time for feedback gives us an opportunity to evaluate students in real time on a range of outcomes such as their team work in the group, how they communicate to each other, how they resolve conflicting opinions and how they conduct themselves amongst peers...This is very important.. ”* (Tutor 1).

*“It was often difficult to give feedback to students regarding the soft skills such as team work, time management and leadership skills...but with PBL, there is an opportunity to also emphasize these issues when giving feedback.....”* (Tutor 3).

*“The beauty with PBL tutorials is that emphasis is not only on knowledge acquisition, but also on other important aspects such how students interact with each other, how they communicate*

*ideas and how they resolve issues.....so time for feedback gives me as a tutor a chance to tell students how they performed regarding these many aspects.... ” (Tutor 5).*

It is evident from the above responses that tutors also realized that feedback provided them with an opportunity to evaluate students’ performance on a number of outcomes within a PBL setting which included not only knowledge, but also others such as communication skills, collaborative learning and resolving issues. There was also evidence from the tutors that feedback provided an opportunity to students to engage in reflective practice as well as engage in self-regulated learning processes. This can be seen in the following responses:

*“I noticed that when I provide feedback, students tend to use that feedback to look back at what they knew before and use my feedback to build on that prior information as they tackle the presented learning task....it also helps them to identify where gaps are in their knowledge”.*

*“As a tutor, the feedback I have observed that the feedback I provide empowers students to take charge of their own learning because it sort of gives them a guide to construct their own learning objectives in the tutorial and map out plans to cover those objectives independently outside the tutorial room....thus this feedback acts as a trigger to make them independent and self-directed learners which is key in a PBL context”.* (Tutor 4).

From the above responses, one can observe that tutors thought that their feedback assisted students to engage in active reflection, relating prior knowledge to the current task and using this opportunity to identify learning gaps. Subsequently, the feedback also acted as a guide for students to derive their learning objectives based on the identified learning gaps and mapping out strategies to cover those gaps independently, which are key tenets of self-regulated learning.

It was also noted that the tutors interviewed identified the real-time social interactive nature of the feedback process as a key opportunity that perhaps needs to be maintained. In all the responses, it was evident that the social setting of a PBL tutorial tended to reduce the power differentials between tutor and students which allowed feedback to be taken in in a relaxed setting. The following response captured this thinking:

*“The setting of a PBL tutorial session in a social interactive manner made the feedback process interesting and as a tutor, I could see students relaxed and received my feedback with ease”.* (Tutor 2).

The above response tries to bring into perspective an application of Activity Theory (see section 2.6), that learning is also a social activity that should involve interaction amongst community members in order to achieve the desired goal.

### 5.6.2 Theme 2: Challenges in the feedback process

Despite the positive aspects and good opportunities expressed by the tutors, their responses also revealed that they experienced some key challenges. From a deeper synthesis of the data, there were two major challenges around which most of the others tended to rotate. These related to the focus of feedback and limited institutional guidance. Through the tutor responses, one could also observe some key suggestions for improvement emerging regarding these challenges. First, the tutors expressed concern that giving feedback on all targeted outcomes in a PBL tutorial setting seems to be a daunting task. From the responses, one could see that tutors tended to concentrate on the knowledge outcome when compared to the other outcomes. The following responses illustrate this:

*“Much as I appreciate the fact that am supposed to give feedback on knowledge acquisition, communication skills of students, their team work skills, how they managed time and many more, the time to do so is limited yet these issues are so many....so I concentrate on the core which is knowledge”.* (Tutor 3).

*“I have tried to give feedback on all other outcomes besides knowledge and found it to be challenging...they are so many and broad and one cannot know where to concentrate yet time is limited”.* (Tutor 5).

From these responses, the time factor and breadth of the feedback regarding the desired multiple PBL outcomes stand out as important aspects to consider. From the perspective of the tutors, there seems to be too many targeted outcomes, yet time is limited. Perhaps, this explains the findings from students that tutor feedback tended to gravitate towards the knowledge outcome (see section 5.2.1). Besides the time factor, tutors also brought out the aspect of subjectivity to the fore. This can be observed in the following response:

*“I have been trained as a tutorial facilitator as well as trained in good feedback principles, so I can confidently say that I know how to deliver feedback. As tutors, we have also been taken through the good aspects of PBL such as giving opportunity to students to acquire soft skills....however, the issue of giving feedback on things like communication, team work, time*

*management, leadership skills and interactive learning in a PBL context is still a challenge.... we all understand these skills differently and are thus likely to bring our different thoughts when giving feedback on these issues...for example a tutor in one group may understand communication differently from another tutor in a another group.... ” (Tutor 1).*

The above tutor response demonstrates that despite the fact that tutors may have received training in effective feedback delivery principles, and the fact that they were aware that PBL allows the acquisition of generic skills besides knowledge, it still remains a challenge for them to deliver the needed feedback. This appears to result from the fact that tutors are likely to perceive the meaning of generic skills (e.g. communication, team work, time management, conflict resolution) differently.

In trying to obtain possible mitigating measures to the identified challenges, I have tried to explore from the tutors what they thought would improve the PBL tutorial feedback process such that the good aspects are maintained and the challenges addressed. The following two responses provided an adequate summary of what was expressed by the tutors:

*“The fact that PBL provides an opportunity to students to acquire soft skills outside knowledge is excellent and this means tutors need to give feedback on all these outcomes apart from knowledge.....the institution needs to come up with adequate guidance for us tutors on how to deliver feedback that addresses all the learning outcomes in a PBL context....sort of what we should follow so that tutors are on the same page.....this will save time...” (Tutor 4).*

*“We do have tutor guides. However, tutor guides do not outline what for example communication would mean in a PBL tutorial context. The tutor guide only has content which is largely targeting the knowledge. To avoid issues of tutors interpreting these things differently when giving feedback.... as an institution, there is need to guide the tutors such that they know what to concentrate on....We need to define what we mean by each outcome in our setting.... The current tutor guides do not capture this. If we do this coupled with some sort of training, we might in a way progress well..... ” (Tutor 2).*

The above two responses effectively capture the aspect of institutional guidance to the tutors when giving feedback. The tutors seem to concur that there is limited guidance for them to effectively deliver feedback that targets all PBL outcomes in a tutorial setting. With some guidance and training, this can perhaps be addressed in addition to effectively utilizing the

limited time available. The finding that tutors recognized limitations of the tutor guides was also observed during the document reviews.

## 5.7 Summary

In conclusion, Chapter 5 has presented the clusters and related themes from this study. These were contextualized by key participant responses that reflected the message in each theme and added context to the description of the themes. From the student findings, the first cluster and related themes described student experiences of the feedback received in which it was observed that tutor feedback did not adequately target all PBL outcomes, besides knowledge acquisition. Subsequently this awakened the need to find a mechanism that can potentially address this. The second cluster and related themes related to factors that could potentially influence students' response to tutor feedback in their learning. From the findings, these factors appeared to be both cognitive and socio-contextual, all operating within the same tutorial setting. The third cluster and related themes spoke to the positive learning effects of tutor feedback. These included stimulation of reflection, activation of previously acquired knowledge and promotion of self-regulated learning. The final cluster and related themes was about the feedback process. It was found out that, the feedback process had some challenges regarding organization, necessitating the need to improve it.

The key findings from tutors seemed to affirm the earlier findings from students, observations and document reviews that although the feedback process in PBL tutorials had numerous advantages, there were also critical challenges. Notably amongst these was, the limited institutional guidance for tutors when delivering feedback in a PBL tutorial.

In Chapter 3, a framework that guided the data reduction process based on the works of Miles and Huberman (1994) was presented. As was described (see section 3.4), this framework consists of three levels. The process described so-far in this study has involved two levels (i.e. Level One and Level Two). The third level as explained in the framework by Miles and Huberman (1994) is a synthesis of the data and presentation of explanations and interpretations. In Chapter 6 that follows, a theoretical synthesis and interpretation of the findings as well as possible explanations and propositions are discussed, relating the findings to the initial objectives of the study as well as to key literature and theory that informed the study.



## CHAPTER 6

### SYNTHESIS AND INTERPRETATION

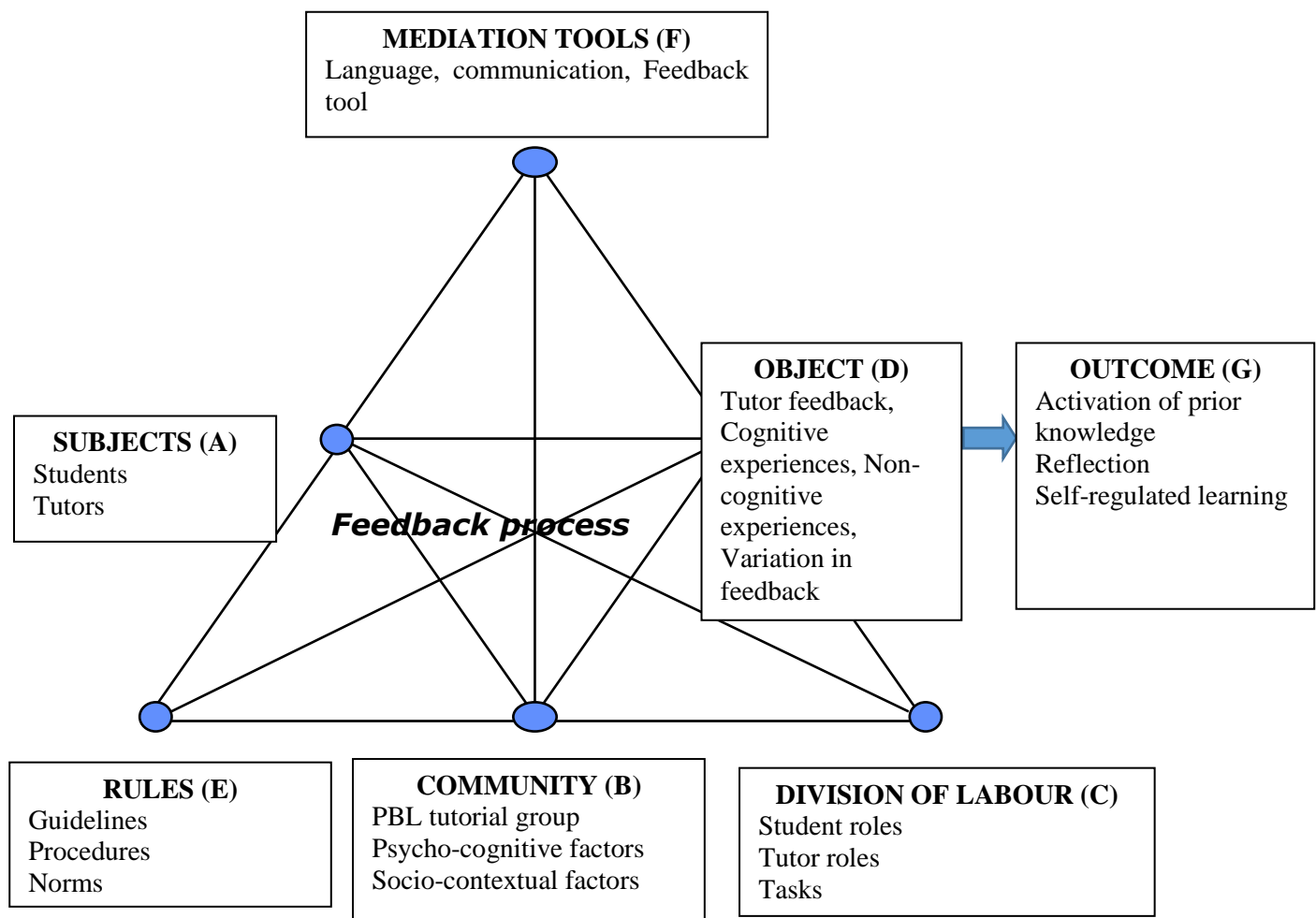
#### 6.1 INTRODUCTION

In Chapters 4 and 5, the findings from this study were presented. The over-arching aim of the study was to explore students' experiences of, response to, and the use of tutor feedback received within a PBL tutorial setting. The data on the students' experiences were further enriched by views from the PBL tutors. This chapter presents a synthesis and interpretation of the key findings from the study. Possible explanations for what has emerged are offered and theoretical propositions put forward. Occasionally, the synthesis is interspersed with a mention of some implications, which are further explained in the concluding chapter. The step of synthesis and interpretation thus completes the final step in both the framework by Miles and Huberman (1994) and the six steps of Creswell (see section 3.4). To facilitate the process of synthesis, Activity Theory was employed as the key framework for the study (see section 2.6). As was explained, Activity Theory is a socio-cultural theory used to organize systems or communities in which an activity takes place (Crawford and Hasan, 2006; Engestrom, 1987; Leontiev, 1978).

#### 6.2 The Activity Theory Framework as applied to the study

Activity Theory is useful in studying human interactions in a social group (see section 2.6). A PBL tutorial group is a form of a social learning group and thus Activity Theory was instrumental in interpreting the key findings in such a community of learning. Activity Theory centres on an activity in which human interaction occurs. This activity takes place within a community organized into different components that include: subjects, object, tools, rules, community, division of labor and outcomes (Crawford and Hasan, 2006; Leontiev, 1978). In this study, the activity was the feedback process taking place within a PBL tutorial group. The framework as applied to this study is illustrated in figure 6.1 with the different components. These components have been identified with different alphabetical letters in the different blocks which will be referred to through the discussion. Thus, the different components illustrated within the activity system form the basis and structure of the synthesis in this chapter.





**Figure 6.1: The Activity Theory Framework for the study**

The components illustrated in the framework in Figure 6.1 are dialectic in nature, in that they do interact with each other within one system to influence the feedback process (see section 2.6). Therefore, there exists multiple mediating dialectical relationships within a complex integrated activity system. In the Activity Framework (Figure 6.1), the component of subjects (A in Fig 6.1) refers to the players in the feedback process who are the students and the tutor. In this context, the tutor delivers the feedback and the students are the recipients of that feedback. The students and the tutor thus form a team that engages with the feedback process. This team subsequently becomes a community of learning with a common understanding of their goals. Formation of this social community of learning is another key component of the activity framework (B in Fig 6.1).

As can be observed within the framework, forming a community of learning requires specification of roles of members in this community. In the framework, this has been illustrated as division of labour (C in Fig 6.1). Contextualizing this to the feedback process, tasks need to be communicated to the students as early as possible in the PBL process. For example, during feedback delivery, tasks for both tutor and students need to be known to the subjects. Such tasks should be spelt out explicitly so as to have a smooth and effective feedback delivery process. Therefore, subjects (A in Fig 6.1) form a community of learning (B in Fig 6.1) and engage in an intended activity (feedback exercise), each having defined roles (C in Fig 6.1).

Another key component of the activity system relates to the object (D in Fig 6.1) which is experienced by the subjects (A in Fig 6.1). In Chapter 2 (see section 2.6), it was explained that the object in Activity Theory should not be limited to physical structures, but also defined artefacts can become objects. Thus, in this study, the philosophical object was the tutor feedback (D in Fig 6.1). Thus, part of the subjects in this study had various experiences of the object within their interactions in the community of learning (B in Fig 6.1). These experiences in away influenced the outcome (G in Fig 6.1) from the tutor feedback. The experiences of feedback also relate to the first objective of the study which was to explore students' experiences of tutor feedback (i.e. an exploration of students' experiences of the *object* in the Activity Framework). In the next sections, the student experiences of feedback, which relate to the object in the Activity Theory framework, are discussed. These experiences of the *object* (D in Fig 6.1) have been synthesized along three angles; the cognitive experiences, the non-cognitive experiences, and variation in tutor feedback.

### 6.2.1 The Cognitive experiences of feedback

A key finding from this study related to the students' ability to recognize the limitations of tutor feedback received (D in Fig 6.1). From the study, tutors seemed to have given useful feedback regarding the mastery of subject content and achievement of intended learning objectives for the PBL learning tasks. However, from the students' perspective, the feedback appeared to be largely content driven. This can be observed from the students' responses in the interviews and focus group discussions, that they received limited feedback on aspects like critical interrogation, analysis, evaluation and synthesis of the task. These can be regarded as meta-cognitive processes. To further support this, tutorial observations of the feedback process also

revealed that tutors mainly emphasized the achievement of the learning objectives which focused on the mastery of content.

The above observations therefore demonstrate the students' active engagement with meta-cognition and meta-learning. Meta-cognition refers to the ability of learners to think about their learning and relate it to what they should be learning (see section 2.4.3). In the context of this study, this would imply that the students were aware of their learning needs and constantly reflected upon the feedback received from the tutors in relation to the outcomes they were supposed to achieve. This meta-cognitive ability of relating tutor feedback to the expected outcomes can be explained from two lines of thought. The first line of thought can possibly be explained by the fact that students are often made aware of the advantages of PBL tutorials as a method of learning right from their first year. Through short sessions organized every semester by the Education Co-ordination Office<sup>3</sup>, students are taken through the various outcomes meant to be acquired within the tutorials. These include: knowledge acquisition, communication skills, collaborative learning and team work, time management, and conflict resolution skills among others. The students are further informed that the tutors assess all these aspects of learning. Therefore, students are aware of these outcomes and this could perhaps explain the fact that they desired receiving feedback along most of these outcomes.

The second line of thought speaks to the fact that tutor feedback as perceived by students seems to have been experienced at not only content level, but also at meta-cognitive level. This meta-cognitive level can be viewed as that level where students engage their mental processes to deeply think about what they are learning and whether they are on track to achieve the desired learning outcomes (Shute, 2008; Martinez, 2006; Efklides, 2006; Schraw et al., 2006). This is opposed to only focusing on only content and not thinking about the significance of that content in relation to what is supposed to be achieved. This is important in the way that, it provides an opportunity to students to evaluate their levels of achievement as well as gaps that need to be addressed in order to achieve the learning outcomes. Furthermore, information from curriculum documents and tutor guides also demonstrated a lack of comprehensive guidelines for tutors to emphasize feedback on all these aspects.

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<sup>3</sup> The Education Co-ordination Office is responsible for ensuring that teaching and learning runs smoothly. It is run by technical people with expertise in the field of Health Professions Education.

The fact that tutors tended to concentrate on delivering feedback with a focus on student achievement of the intended learning objectives and mastery of the subject content is not unexpected. From PBL literature, the importance of delivering feedback that targets the achievement of the intended objectives has been emphasized (Koh et al., 2008; Azer, 2008; Schwartz et al., 2002; Schmidt, 1998). However, whilst giving feedback targeting the mastery of content and achieving the intended learning objectives is indeed crucial, there is a need for PBL tutors to move beyond this. Tutors need to view the knowledge construction process during a PBL tutorial comprehensively and deliver feedback targeting various aspects involved within this process. This comprehensive feedback on knowledge construction as a process can possibly be more useful in guiding students' learning, an observation that is supported by previous research (Cuseo, 2009; Eraut, 2006). Such comprehensive feedback is also more likely to give students a more complete analysis of their knowledge and understanding of the learning task, and provide them with a clear direction on where improvement is needed.

### **6.2.2 The Non-cognitive experiences of feedback**

It was noted from the findings that besides knowledge, feedback (D in Fig 6.1) targeting outcomes within the non-cognitive domain was also reported to have been variable. In the context of this study, non-cognitive attributes would refer to those generic skills besides knowledge that can be applied along with acquired knowledge to perform a task. These may include: communication skills, interpersonal relations, conflict resolution, time management, leadership, team work, and respect for others (see section 2.2). The importance of these non-cognitive attributes besides knowledge for health professionals has been well documented in PBL literature (Pease and Kuhn, 2011; McKendree, 2010; Schmidt et al., 2007; Albanese, 2000). In these studies, the common denominator is that, in traditional didactic teacher-centered learning such as lectures, it was a challenge to create opportunities for students to develop these attributes, and that PBL tutorials are better suited than the traditional didactic lectures in allowing students to acquire these attributes. Many proponents of PBL tutorials have advanced the argument that PBL provides the best platform for students to acquire the non-cognitive attributes mentioned above (McKendrie, 2010; Schmidt et al., 2007).

Therefore, if a PBL tutorial environment is meant to provide an opportunity to students to attain a variety of non-cognitive attributes, it would imply that PBL facilitators need to also deliver

effective feedback to students regarding performance within the non-cognitive domain. This relates closely to what has been previously implied by PBL critics that facilitators tend to put more emphasis on knowledge acquisition during tutorial discussions and put little emphasis on other competencies outside the knowledge domain (Kirschner et al., 2006; Colliver, 2000). However, one should also note that facilitating the PBL process is reliant on the focus, experience and skill of the tutor. This is important, especially during feedback delivery where different tutors may focus on different aspects of the tutorial. The aspect of experience was evident within the tutor interviews, where the tutors also recognized that experience in feedback delivery is very vital. This therefore becomes a challenge that programme planners need to be cognizant of. The fact that tutors acknowledged receiving training in feedback delivery, probably points to the need for revising the current training model or for improving the focus of the training to address this.

### **6.2.3 Variation in tutor feedback**

In the PBL activity system, tutor feedback (D in Fig 6.1) at times seemed to vary from one group to another. For example, whereas a tutor in one tutorial group would give feedback on knowledge acquisition, participation and communication skills, another tutor from a different tutorial group would only concentrate on knowledge acquisition. This finding was common to all the groups that were involved in the study. From the findings, such reported variations in the target of tutor feedback were experienced by the students from earlier years of study, so it seemed to be an accumulated reported experience. The observations of the feedback process also supported this where tutors appeared to target different outcomes when giving their feedback. Although this may not be a problem, due to the fact that different PBL groups may have varying feedback needs, the tutors did not affirm this in their responses.

One would argue that despite the varying feedback needs of the different PBL groups, in a training context, there could be value in having a uniform feedback approach. Having a uniform approach to feedback delivery would ensure that the over-arching institutional outcomes that are applicable to all students would be addressed. However, PBL tutors can go beyond this in their feedback. Having addressed the over-arching institutional outcomes, they can then give more feedback specific to the needs of a particular PBL group. There could be many reasons as to why the tutor feedback varied. However, Wirkala and Kuhn (2011) suggest that non-uniform feedback could be as a result of differences in facilitators, some of whom may be experts while

others may not be experts, and some may be more experienced than others. Furthermore, there could be time limitations to give comprehensive feedback on every aspect of the PBL tutorial, and management of the time allocated for tutorials is done differently by the various tutors (Wirkala and Kuhn, 2011). From the interviews with the tutors, this observation was also reflected, where the tutors reported having many targeted outcomes to target amidst the timeframe allocated for the tutorial. This probably could have limited the scope of the tutor feedback as was perceived by the students.

Besides differences in tutor expertise, experience and time limitations, one would also think that the practice of tutors targeting their feedback to only certain outcomes could be due to the manner in which the curriculum is structured and implemented. However, when the curriculum documents were reviewed, they appeared to have well defined outcomes addressing both the cognitive and non-cognitive domains, and this may not offer a satisfactory explanation as to why students in this study reported receiving limited feedback on all PBL outcomes. Apart from the curriculum however, are the tutor guides. An example of a tutor guide is provided in Appendix N. The tutor guides tended to concentrate on the knowledge outcomes (cognitive domain) with limited emphasis on the other non-cognitive attributes.

There appears to be a lack of a clear linkage between what is documented in the curriculum and what is implemented in the actual PBL tutorial sessions. Some of the tutors thus seem to follow implementation guidelines that they are provided with which are not well aligned with the curriculum. This is possibly where a challenge arises for programme planners and probably the tutors as well. This argument can be seen to resonate through the responses from the tutors who were interviewed. The tutors cited a lack of institutional guidance especially on feedback delivery in a PBL tutorial setting (see section 5.6.2). However, while the lack of feedback guidelines within the tutor guides could have been partly responsible for the perceived limitations in the target of feedback, there could also have been other factors that partly prevented tutors from delivering the much needed comprehensive feedback. For example; limited time for the tutorial sessions (see section 5.6.2), inadequate training of tutors (see section 2.2), varying experience and expertise of tutors and the nature of assessments that tend to focus on cognitive aspects (Wang et al., 2016). Some of these could all have been possible factors that might have contributed to the trend of perceiving feedback as being limited and varying.

Despite the perceived limitations and variations in feedback, students should still receive effective feedback to guide their learning. A key argument that stands out seems to be a lack of clear feedback guidelines for tutors outlining the key aspects that feedback should target in a PBL tutorial setting. It seems to be a lack of these guidelines that partly results into tutor subjectivity as well as challenges with time since tutors seem not to know exactly what key aspects to concentrate on. Having such clear guidelines could potentially improve the task of the tutors. In an African context with resource-constraints and limited skilled tutors, such guidelines would be a useful starting point.

### **6.2.4 Mediation tools in the feedback process**

Within the Activity Framework presented at the beginning of this chapter (Figure 6.1), two other key components of any activity of human interaction include: the mediation tools (F in Fig 6.1) as well as rules and guidelines (E in Fig 6.1) for the activity. Activity Theory emphasizes that subjects (A) utilize mediation tools (F) to act on an object (D), being guided by established rules/guidelines (E). In order for tutors to effectively frame their feedback within the PBL tutorial community, they need mediation tools and guidelines to execute this activity. A key mediation tool identified in this study for the execution of the activity (i.e. feedback delivery process) included language and communication of feedback (F in Fig 6.1). It has been extensively reported that the language used and the manner in which feedback is communicated can promote or hinder its use by the intended recipients (Orsmond et al., 2013; Yang and Carless, 2012; Boud and Molloy, 2012; Burke, 2009; Poulos and Mahony, 2008; also see section 2.4.2). In this study, the finding that sometimes the language of feedback and communication of that feedback was not clear, caused embarrassment and hindered students to learn (see section 5.3.1.5), are in agreement with what has been previously reported on effective feedback, that clear language is crucial (see section 2.4.2).

The use of good communication skills, both verbal and non-verbal to deliver feedback seems to be a very powerful tool in delivering the intended feedback message. As noted in this study, students tended to disregard unclear feedback from facilitators whose facial expressions exhibited anger and disinterest in the activity (see section 5.3.1.5). The reason for this is not clear-cut. While one cannot be sure of the reasons for the students' behavior, it can be argued that this can influence the learning experience, and potentially, the quality of learning.



Students reported that tutors often used formal medical terminology or jargon which seemed complex to them. One ought to deconstruct the aspect of language in this context including the words used, whether clear or filled with technical medical jargon, the tone used, and framing the feedback message in a manner that will actually not impede learning. The key implication for learning is that, if tutors use complex medical terminology without explaining it to students, this kind of feedback is likely to be ignored by the students. Perhaps there is need for tutors to demystify the complex medical concepts to a level that can easily be comprehended by the students. The importance of language when communicating feedback is not a new argument, and has been previously reported in literature (Hattie and Timperley, 2007). Findings from this study thus concur and further re-enforce what has been previously reported, that language is an important factor when delivering effective feedback to learners. The aspect of language of feedback was also manifest in the choice of words used by the tutor to deliver either positive or negative feedback. Specifically, framing negative feedback in a positive way appeared to greatly enhance learning. In addition to this, the influence of choice of words when delivering either positive or negative feedback is also crucial. Feedback potentially needs to be framed using positive words even when it is seemingly negative. This way, the feedback is more likely to result into the desired outcome.

In the activity framework in Figure 6.1, mediation tools identified in this study include language, communication and a feedback delivery tool (F in Fig 6.1). The aspect of language and communication has been discussed. However, another aspect of the mediation relates to the feedback tool. From the study, tutors reported having limited guidelines and no tool on feedback delivery during PBL tutorials. The review of documents also revealed limited guidance for tutors on feedback delivery. In an educational context like the PBL learning situation, there perhaps needs to be a guide for tutors which can act as a tool to facilitate feedback delivery, besides use of effective language to communicate the feedback. Therefore, having a feedback guide for tutors as a tool, fits well within the activity theory framework since such a tool can outline steps for tutors to follow when framing their feedback (i.e. when performing an activity). In developing such a mediation tool, it would be useful to deconstruct each of the key outcomes and clearly guide tutors on what particular aspects to concentrate when framing their feedback. It may be a challenge to simply expect a tutor to deliver feedback for example on collaborative learning and time management in a PBL group when such a tutor does not know what these outcomes entail. Therefore, all expected outcomes in a PBL setting need to be defined to assist the tutors.



As presented in Chapter 2, there is extensive literature on PBL and feedback in health professions education that emphasizes the importance of acquiring a multiplicity of outcomes within a PBL tutorial setting (see section 2.2). However, there is still less reported literature documenting feedback tools for tutors involved in facilitating PBL tutorials. From an African context, the importance of the PBL multiple outcomes mentioned in PBL literature have to be contextualized within the specific African setting. For example, communication in some African contexts does not happen in the exact same way as in for example a European context and certain words are not supposed to be said out loud because they may be perceived as being offensive. Furthermore, time management in an African context may be interpreted differently compared to, for example Europe. These types of contextual differences need to be taken into account when designing feedback guides as mediation tools. Therefore, feedback mediation tools for PBL tutors in Africa need to be informed by the African contextual settings. Unfortunately, there has been less reported feasible feedback mediation tools for tutors to enhance the feedback process during PBL from the African context. From this study, a feedback tool has been developed to address the gap. This feedback mediation tool is explained further in section 6.4 as the key outcome of this study, and it fits in well within the Activity Theory system.

### 6.2.5 Outcome from tutor feedback

In the Activity Theory framework that has guided the discussion in this chapter, the last component of the system relates to outcome (G in Fig 6.1). Thus, outcome cannot be detached from the object (D in Fig 6.1) to complete the interactions within the activity system. Therefore, when all components in the activity system (i.e. A, B, C, D, E, and F in Fig 6.1) interact, they eventually culminate in an outcome (G in Fig 6.1). In the context of this study, this outcome speaks to the *learning outcomes* from the tutor feedback. This can also be related to the last objective of this study which was about exploring ways in which students utilized tutor feedback. From this study, there were key positive outcomes (G in Fig 6.1) from the tutor feedback. These included: activation of prior knowledge, reflection and self-regulated learning. Critically looking at these effects, one can conclude that feedback is once again seen to result into both meta-cognitive knowledge acquisition and meta-cognitive regulatory processes within the students. Meta-cognitive knowledge seems to have resulted from the processes of activating prior knowledge and self-reflection while meta-cognitive regulation resulted from student

engagement in self-regulated learning strategies such as forming independent learning and monitoring plans. These outcomes also demonstrate a key impact of tutor feedback in learning as observed in this study. In the next sections, these outcomes that could result into a long term impact of tutor feedback are discussed.

### **6.2.5.1 Activation of prior knowledge**

Students in this study used tutor feedback (D in Fig 6.1) to activate what they had already learnt in order to apply it to new learning scenarios, a key outcome (G in Fig 6.1) from the tutor feedback (see section 5.4.1). This finding also resonates well with previous literature (Zimmerman, 2008; Pintrich and Zusho, 2002). Activation and application of prior knowledge to solve new learning tasks is a key ingredient of a PBL tutorial session (Norman and Schmidt, 2000). Gijbels et al. (2005) have also reported that students possess a body of knowledge from previous learning experiences and new learning tasks should build on what students already know. The implication of this is that effective PBL tutors should thus be able to trigger recall of what students already know so that newly acquired knowledge encodes upon what is already known. From this study, it therefore appears that, if tutors are to encourage students to re-call previous information to solve a new learning task, they can use good feedback to stimulate students to independently engage in this recall.

The role of effectively using feedback to stimulate students to activate previous knowledge and apply it to a new learning situation can also be viewed from the lens of the Five-Stage theoretical model of feedback that was described earlier in this thesis (see section 2.5.4). In this model, it is implied that feedback can promote learning if it is received mindfully by students, but that it can also hinder learning if it encourages lack of interest. In the context of this study, feedback may encourage limited interest in active learning if for example tutors provide correct answers or intended learning objectives directly to learners at the very beginning of a PBL tutorial without allowing learners to brainstorm issues and activate their memories for prior knowledge to come up with solutions to the learning task.

Still applying the Five-Stage feedback theory to a PBL tutorial setting, it can be argued that PBL tutorial problems/cases become the learning experiences that stimulate students to go through the five stages. This includes the search and retrieval of prior knowledge to address the problem, receipt of feedback from the tutor and evaluation of that feedback. This eventually results into

students' re-evaluating/modifying prior knowledge and their initial response before encountering another tutorial problem (in this case- the learning experience). It can thus be inferred from this model that students engage in activating long term memory fueled by receipt of feedback. One can therefore conclude that tutor feedback is important in assisting students to use their prior knowledge before constructing new knowledge. Tutors are encouraged to ensure that their feedback allows students to activate prior knowledge independently as a way of contributing to new knowledge construction.

In summary therefore, it can be noted from the study that students used tutor feedback to recall concepts already learnt to solve new PBL learning tasks. The feedback perhaps also assisted students to sequence their knowledge, relating new information to what is already known. Good feedback delivery practice is one way through which facilitators can assist students to recall and utilize already learnt knowledge in new learning situations.

### **6.2.5.2 Reflection**

Another important outcome in the PBL activity system is reflection (G in Fig 6.1). Students also seemed to use tutor feedback to reflect upon their performance in their tutorial discussions (see section 5.4.2). This finding resonates with what has been reported in previous literature that active reflection about performance can be stimulated through the receipt of feedback (Yang and Carless, 2013; Kolb, 1984). The importance of training reflective health professionals has been previously emphasized (Mubuuke et al., 2010). This reflective practice is vital as it helps health professionals to independently appraise their own performance, identifying strengths as well as areas that need improvement. As explained in chapter two, reflection has been defined as thinking about an action as a result of a previous experience (Kolb, 1984).

In the context of this study, reflection can be viewed as having students to think about their performance in the tutorial with regard to discussing issues in the presented learning task, identification of learning gaps and achieving the learning outcomes. In learning, reflection would involve a combination of skills, knowledge and attitudes by the learner in order to assimilate new concepts into pre-existing structures in his or her long term memory. Therefore, new knowledge becomes assimilated into the student's memory (Yang and Carless, 2013). Feedback is thus most likely to be essential in inculcating the reflective skills into students as it allows them to think back about their own progress.

Although literature emphasizes the importance of training students how to engage in active reflective practice (Grant et al., 2007; Heycox, 2005; Rust, 2002), there is limited reported literature on how to teach reflective practice. Findings from this study probably contribute to this aspect. In this study, it was discovered that good facilitator feedback in small PBL groups could possibly be one way through which students can be trained to reflect. Feedback comments from facilitators most likely trigger students to think about the task at hand, think about their own performance on the task and identify what they did well as well as where they need to improve in order to achieve the intended learning outcomes. This way, students therefore engage in a form of self-appraisal and reflection using the feedback received which enhances their learning.

### **6.2.5.3 Self-regulated learning**

Self-regulated learning was also a key outcome from the feedback (G in Fig 6.1). Students appeared to use tutor feedback to engage in self-regulated learning processes (see section 5.4.3). In a sub-study that explored some of the findings from this main study, it was argued that feedback has the potential to enable students to form their personal independent learning plans and monitor their own learning activities.<sup>4</sup> This finding reflects what is emphasized in both Self-regulated learning theory (Zimmerman, 2008; Schunk, 2001) as well as Hattie and Timperley's feedback framework regarding self-regulation (see section 2.5.1). A synthesis of these two frameworks reveals that feedback empowers students to monitor, evaluate, focus, plan, organize, manage and direct their own learning actions towards achieving the learning outcomes. These are all tenets of self-regulated learning which were observed from the student responses in this study. Therefore, since forming a learning plan is part of a PBL tutorial process, facilitators need to continue delivering effective feedback to facilitate this process.

A learning plan may include aspects such as forming learning objectives (which emanate from initially identified learning gaps), focusing one's learning strategies, engaging in self-directed study as well as mapping out key sources of information to address learning objectives and subsequently solving the learning task (Hmelo-Silver and Barrows, 2006). It is sometimes a challenge for students to independently come up with a clear learning and monitoring plan from

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<sup>4</sup> Mubuuke AG, Louw AJN, Van Schalkwyk S. 2017. Self-regulated learning: a key learning effect of feedback in a problem based learning context. *African Journal of Health Professions Education*, 9 (1):34-38. DOI: 10.7196/AJHPE.2017.v9i1.715

the tutorial (Schwartz et al., 2001), and thus, the tutor has a role to play at this moment by guiding students to create a clear plan. Feedback from the tutor can be one way through which students can be guided to form good learning plans. Tutor feedback possibly has the potential to assist students to only focus on those key areas pertinent to the PBL task and not digress into other irrelevant issues. This may also avoid the scenario which has been reported in literature that often, students without tutor feedback guidance formulate learning objectives and strategies that are skewed away from the intended institutional learning outcomes (Norman and Schmidt, 2000).

The discussion of the findings from this study has so far been framed within the principles of the Activity Theory framework, which is comprised of different components (see Figure 6.1). In the activity system of the PBL tutorial setting, it was discovered that various factors do reside and interact in the system to influence students' responses to the object, which in this study is the tutor feedback (D in Fig 6.1). These factors, which were found to be both psycho-cognitive as well as socio-contextual have been already presented earlier in this thesis (see section 5.3). In the next sections, these factors are discussed.

### **6.3 Factors influencing response to tutor feedback**

It has been reported in literature that various factors have the potential to influence response to and the use of feedback by the intended recipients (Hattie, 2009; Van de Ridder et al., 2008). Findings from this study relate to this observation in literature. From the study, it was discovered that after receiving feedback (see D in Fig 6.1), the uptake of that feedback by students does not automatically lead to a desired learning outcome. Rather, students have to make a decision on how to respond to that feedback. They may decide either to utilize the feedback or not. However, this decision does not appear to occur in a vacuum, but there are various factors that may come into play. These various factors do reside and interact with each other within the same Activity Theory system to eventually influence the outcome, which is arguably part of the object.

In another sub-study based on this work, it was argued that these factors, which exert their influence directly on the students' uptake of the feedback can either originate from within the students' mental perceptions (Psycho-cognitive factors) or from outside the tutorial learning

environment (Socio-contextual factors).<sup>5</sup> In this sub-study, it was further argued that both psycho-cognitive as well as the socio-contextual factors also seem to be dialectical (i.e. interact simultaneously and do re-enforce each other), and thus influence the students' decisions on how to respond to the feedback within a particular activity system). In the following sections, these factors are further discussed. This also addresses one of the objectives of this study, which was to explore various factors that influence students' response and use of tutor feedback.

### **6.3.1 Psycho- cognitive factors**

There were various cognitive factors that influenced students' response to and use of tutor feedback. These factors seemed to be primarily focused on the students' thinking processes and how they perceived the tutor feedback received. Key among these was cognitive load. Cognitive load refers to the total amount of mental effort being applied by students to engage their working memory as a result of an external in-put (Molloy, 2010; also see section 2.4.2). In the context of this study, cognitive load would imply giving much feedback information to students at any one time. Cognitive load seemed to negatively affect the ability of students to efficiently utilize the tutor feedback to inform their learning. This relates with what has been previously reported in literature that overloading students with information can block the learning process (Dysthe, 2010; Molloy, 2010).

Similarly, giving much feedback within a short period of time has been reported to result in overload of the working memory and impeding meta-cognitive and reflective processes of students in the process of knowledge construction (Carless et al., 2011; Hattie and Timperley, 2007). This practice probably prevents students from picking out what is important at that particular time to enhance their learning and subsequently, students may not be able to use that feedback effectively (Kluger and Van Dijk, 2010). One way of addressing this situation could be for the PBL tutors to pick out only particular feedback aspects that are relevant at particular points in time during the tutorial process instead of waiting to give all the feedback at the end of the tutorial discussion. Too much feedback information from the tutor is an example of extraneous cognitive load coming from an external source (the tutor) which can prevent learning.

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<sup>5</sup> Mubuuke AG, Louw AJN, Van Schalkwyk S. 2016. Cognitive and Social Factors Influencing Students' response and Utilization of Facilitator Feedback in a Problem Based Learning Context. Health Professions Education. DOI: <http://dx.doi.org/10.1016/j.hpe.2016.09.003>

However, there was also intrinsic cognitive load where the PBL learning task was perceived to be difficult by the students. Intrinsic cognitive load has been explained in Chapter 2 (see section 2.4.2) as that load which comes from the students' own perceptions of the difficulty of a learning task which can also affect learning (Molloy, 2010). Both extraneous and intrinsic cognitive load may have an implication for PBL tutors. First, students are likely to have difficulties in engaging their working memory to learn cognitively complex tasks. Therefore, tutors need to design tasks that are at the level of student understanding in order to reduce intrinsic load. Secondly, extraneous cognitive load that results from too much feedback from the facilitator can be addressed from an instructional design perspective by having tutors deliver small amounts of feedback at any one point in time throughout the tutorial discussion.

Another key factor identified related to the specificity of feedback from the tutors. Specificity of feedback in this context would mean that type of feedback that is concise and precise, and points out exactly the learning strengths that need to be maintained as well as gaps that need to be addressed (see section 2.4.2). It has been previously emphasized that for feedback to be effective, it needs to be specific (Hughes, 2011; Carless et al., 2011; Eraut, 2006). Findings from this study are in agreement with this previous literature, in that students reported that feedback that was perceived to be too general and not focused to particular aspects of either strengths or weaknesses was not useful in their learning.

Feedback specificity needs to be applied in both positive as well as negative situation of the tutorial process. For example, even when a student has performed well in a tutorial discussion on a range of outcomes, vague praise without particular focus on certain areas to such a student might not help him or her. Similarly, when a student has not performed well in a tutorial, vague reprimand is also not likely to help that student. In order to promote effective learning, the tutor feedback needs to go beyond the personal and task level and specifically inform students what they have done well and maintain such performance, and where exactly improvement is needed. One potential way of giving specific feedback within a tutorial could be for example having tutors to periodically intervene as the tutorial discussion progresses to give small amounts of feedback. This is likely to overcome the practice of giving overloaded feedback at the end of a tutorial discussion.



In this study, it was found out that students tended to respond to feedback less positively if it is from tutors whom they perceived as having limited knowledge of the content (see section 5.3.1.3). Although a good PBL tutor is someone who has mastery of the subject content and also has good facilitation skills (Hmelo-Silver and Barrows, 2006), many institutions lack enough subject experts to act as tutors (Anderson and Glew, 2002). Subsequently, non-subject experts have increasingly found themselves at the center of facilitating PBL tutorial group discussions. The subject of having content experts versus non-content experts assigned to facilitate PBL tutorial discussions has been extensively reported and remains an active debate in PBL literature (Wijnen, 2017; Euler and Kuhner, 2017; also see section 2.2). The main argument especially from PBL critics has been that, content experts would be the best PBL tutors since they have mastery of the subject. In an African context, many institutions practicing PBL may have limited numbers of subject specific tutors, since PBL is relatively new in Africa compared to Europe or America. In such a situation, non-experts are likely to be used as PBL tutors. Therefore, there is a need to mitigate the eventual perceptions of students labeling these tutors as non-knowledgeable by training them in good PBL facilitation skills through faculty development programmes.

It was also found out from the students' responses, that feedback, which failed to link prior knowledge to expected learning outcomes, was often not efficiently utilized (see section 5.3.1.4). By providing feedback in relation to what students know and where they are expected to reach, students are given an opportunity to also evaluate themselves along this journey (Housell, 2008). Therefore, through the tutorial process, tutors constantly make professional judgments about their student performances and it is upon these judgments that they should anchor their eventual feedback. This formative feedback within the tutorial should be seen as the engine that drives student learning towards achieving the desired learning outcomes. Linking feedback to learning outcomes can be illuminated through the lens of the Feedback Interventions Theory as well as the Narciss and Huth conceptual framework on feedback, that learner behavior is controlled by comparing feedback to what students know and their learning goals (Kluger and DeNisi, 1996; Narciss and Huth, 2004; also see sections 2.5.3 and 2.5.5).



### 6.3.2 Socio-contextual factors

Activity Theory emphasizes that any activity takes place in a social setting and thus should not be detached from the context in which it occurs (Liaw et al., 2007; also see section 2.6). The students' response to feedback was not only influenced by cognitive factors as discussed in the previous section, but also socio-contextual factors within the same activity system of a PBL tutorial community (B in Fig 6.1). Although it has been implied in literature that contextual factors do play a role in effective learning within a PBL tutorial setting (Azer, 2008), literature specifically documenting the impact of socio-contextual factors influencing students' use of tutor feedback in the context of a PBL tutorial, is still less reported in health professions education.

This study specifically highlights that PBL tutors need to not only concentrate on framing good feedback messages, but should also be aware of socio-contextual factors that may influence use of that feedback. For example, key socio-contextual factors that were found out in this study such as tutor relationship with students, communication skills within the group setting, gender issues and active tutor participation in the tutorial discussion need not be taken lightly (see section 5.3.2). A tutor who is aware of both cognitive and socio-contextual factors, and how they might interact to influence response to his or her feedback, is more likely to frame his/her feedback messages in a manner that will be well appreciated by students, and hence drive learning towards the desired direction.

One key factor related to tutor active engagement with the tutorial discussion (see section 5.3.2.3). A tutor is part of the PBL tutorial group and as such, he/she should participate in the tutorial proceedings (Dutch, 2001). The tutor actively participates by asking challenging questions to stimulate students learning and ability to critically analyze the learning task (Koh et al., 2008). From this study, the extent to which the PBL tutor was engaged with the students in the tutorial discussion, and the manner in which such a tutor related with the students seemed to influence the way in which students responded to feedback. A tutor who is not actively engaged with the tutorial discussion is not likely to be fully aware of the different opinions, ideas and arguments that students are discussing. Such a tutor is therefore not likely to give engaging feedback based on students' discussions, an observation that has been previously reported (Ward and Lee, 2002). Activities that disengage the tutors from active participation such as working with their laptops and phones create a challenge because student may think that such a tutor is

not interested in their discussion. Students observed such tutors, and this could be a reason as to why their feedback was deemed of limited benefit to their learning (see section 5.3.2.3).

Another factor was about the tutor-student relationship (see section 5.3.2.2). Students seemed to positively identify with tutors who were friendly to them. This resulted into students responding to feedback from such tutors positively. It is difficult to know the reasons for this. However, perhaps the students were possibly searching for a mentor-mentee relationship with their tutors, which is an excellent idea. Small group learning has been reported to be an excellent opportunity for tutors to come closer to their students and create the mentorship bond that would possibly promote effective learning (Laurillard, 2002). Indeed, this close relationship between facilitator and students would possibly even make delivery of feedback easier since students can ask for clarifications without much fear. The responses from some of the students revealed that they wanted a fatherly/motherly relationship with their tutors.

However, although relating well with students in this parental manner may appear to be desirable and can possibly reduce the power relations between the tutor and students, one should also be cognizant of the fact that being too friendly with students may also have its own negative implications to learning and put unrealistic expectations on to the tutors. For example, students may sometimes not seriously consider feedback from a tutor who is perceived too friendly to them. Sometimes, a tutor may not want to hurt his/her students with negative feedback since he/she may view them as his/her sons and daughters. Unfortunately, this may affect feedback delivery and its intended impact on student learning, besides compromising the real role of the tutor. The onus lies on to the tutors to find that balance that would rather represent a more mentor-mentee relationship that can potentially facilitate effective learning (see section 2.4.5).

An important socio-contextual factor arising out of this study related to gender concerns within the tutorial group (see section 5.3.2.4). Whilst the influence of gender on feedback and learning has been previously reported in literature (Havnes et al., 2012; Rowe and Wood, 2008), the specific implications of gender related comments from tutors when giving feedback in a health sciences context, and specifically within a PBL setting have been less reported. Perhaps the illumination by this study regarding the potential negative effect of gender related comments from tutors on student learning in a health sciences educational context will stimulate further debate on this subject. In the context of this study, gender stereotyping would refer to the use of

statements/phrases directed towards either the female or the male students. Gender insensitive statements seemed too often to prevent victim students from positively responding to and effectively using tutor feedback. Globally, discriminative gender statements and stereotypes are of a great concern. For example, both males and females are currently looked at as being the same and should thus be referred to without using discriminatory statements. The fact that this issue also comes up within a PBL educational context points to its significance. This study thus informs us that tutors need to be aware of the influence of gender in an educational setting like a PBL group. Unfortunately, gender issues within a PBL tutorial in Africa have not been widely studied before. Although, it was not the focus of this study, the aspect of gender as an interacting factor within a bound PBL tutorial activity system, and its influence on response to feedback, is an important finding from the study.

In order to possibly minimize the effects of tutor feedback that is perceived to be gender sensitive, it would perhaps be more appropriate for tutors to utilize neutral statements when giving feedback such that students do not perceive the message as if it is targeting them directly. From this study, one can deduce that even when feedback is of the highest quality, it may be ignored and thus rendered ineffective if it is perceived by the students as attacking a certain gender within a PBL group. Tutors are encouraged to frame feedback that is not likely to be perceived as an attack towards certain genders during tutorials. Such statements may embarrass some students within the PBL community of learning (B in Fig 6.1) and they may ultimately ignore the feedback. Comments directed towards students in form of feedback need to be packaged cognizant of the members of the community in which learning is taking place. Comments from a tutor that are directed towards a certain gender (either female or male) within this community may have the potential to disengage the victim students from learning. Such students are most likely to become withdrawn and biased towards not only the feedback, but also towards a particular tutor. To problematize this further, one needs to also objectively think about the intention of the tutors when their feedback is perceived by students to be 'gender-insensitive'. Sometimes, tutors may actually seem to use certain statements to emphasize a point. However, feedback comments from tutors spoken out either consciously or unconsciously that are likely to be perceived as gender discriminatory, need to be avoided within the tutorial during feedback delivery. In this study, it has been shown that various factors reside within the PBL activity system to potentially influence students' responses to tutor feedback, and these factors are likely to interact with each other in the same system. Framing of feedback by the tutors, with

an awareness of the simultaneous interaction of the various factors within one single activity system, and how this is likely to influence response to feedback is thus very crucial.

As mentioned earlier, the findings in this study have been discussed basing on the Activity Theory framework. Activity Theory has been previously applied in social learning groups (Zurita and Nussbaum, 2007; Liaw et al., 2007). In higher education, the works of Scanlon and Issroff (2005) provide ample evidence that Activity Theory is useful in educational research. However, the application of Activity Theory in health professions education, and specifically to the feedback process in a PBL tutorial within an African context has been less reported. A key contribution of this study therefore, has been the application of Activity Theory, which is largely a socio-cultural theory, as a framework to explain the key components of the feedback process in a PBL tutorial setting.

Subsequent to the application of Activity Theory to explain the findings from this study, there was a gap identified regarding the mediation tools. The aspect of language of feedback was an important mediation tool identified in the feedback process (F in Fig 6.1). However, from the findings, it was discovered that there was no formal feedback tool comprising of guidelines for PBL tutors. This would also be an important mediation tool in the feedback process besides language of feedback. Therefore, in trying to address the identified gap and contribute to both knowledge and practice of feedback delivery within a PBL tutorial context, I have utilized the findings from the study, as well as the literature and theory that guided the study to develop a structured PBL tutor feedback tool.<sup>6</sup> The developed feedback tool can be used as a mediation tool (F in Fig 6.1) that contains guidelines needed to execute the intended activity (feedback delivery process) within the PBL community of learning (B in Fig 6.1). The key unique feature of this mediation tool that could possibly set it apart from any other guides that may exist, lies in its structured nature, and thus its possible acceptability and feasibility in a resource-limited setting. In the next section, this feedback mediation tool is further explained.

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<sup>6</sup> This tool has been published as: Mubuuke AG, Louw AJN, Van Schalkwyk S. 2016. Utilizing students' experiences and opinions of feedback during problem based learning tutorials to develop a facilitator feedback guide: an exploratory qualitative study. BMC Medical Education, 16(1):6. DOI: 10.1186/s12909-015-0507-y

## 6.4 The Feedback Tool: A key outcome from the study

As discussed earlier (see section 6.2.4), the Activity Theory framework emphasizes the use of appropriate tools to execute an activity (F in Fig 6.1), and the feedback guide has been identified as a possible tool to facilitate the delivery of feedback in this regard. The feedback guide is aimed at acting as a mediating tool for tutors during feedback delivery, and to ensure that the tutors deliver feedback along similar competency domains in order to achieve some degree of uniformity of the feedback message. The tool can potentially act as a resource for both experienced and less experienced PBL tutors. It emphasizes the key learning outcomes that the PBL tutorial aims at addressing. Five key feedback domains are emphasized within the guide, which include: problem conceptualization and knowledge construction; participation and team work (collaborative learning); communication and interpersonal skills; time management and leadership; and reflective practice. Against each feedback domain is a list of questions that can guide the facilitators to frame their feedback. Thus the guide has not only knowledge, but also other key competencies that need tutor attention too. The structured feedback guide (mediating tool) is illustrated in Table 6.1.

**Table 6.1: Structured Feedback Tool for PBL tutors**

Feedback Domain	Description
<b>Problem conceptualization and Knowledge construction process</b>	<p><b>How did the feedback assist students to:</b></p> <ul style="list-style-type: none"> <li>• Understand the problem presented? E.g. understanding the central theme and key concepts in the problem</li> <li>• Identify their level of knowledge regarding the problem?</li> <li>• Reflect upon the problem and alter their previous understanding?</li> <li>• Identify their learning gaps that need more attention?</li> <li>• Self-judge or appraise themselves regarding their performance?</li> <li>• Identify their own strategies and plans to alter their learning in order to achieve more?</li> </ul>
<b>Participation and team work (Collaborative learning)</b>	<p><b>To what extent did students:</b></p> <ul style="list-style-type: none"> <li>• Share knowledge acquired? E.g. actively giving information in the discussion, clarifying issues and providing counter-arguments.</li> <li>• Ask questions for clarification of ideas and concepts within the group?</li> <li>• Clarify issues to peers?</li> <li>• Practice collaborative learning? E.g. willingness to learn from each other in a collaborative and not competitive manner.</li> </ul>
<b>Communication and interpersonal skills</b>	<p><b>To what extent did students:</b></p> <ul style="list-style-type: none"> <li>• Listen to each other during the discussion?</li> <li>• Express their ideas/arguments loudly, clearly, confidently and precisely?</li> <li>• Organize their ideas? E.g. demonstrating coherent and logical flow of ideas in their discussion/arguments.</li> <li>• Show respect, maturity, self-control and concern when discussing with colleagues in the group?</li> <li>• Demonstrate conflict resolution skills? E.g. addressing any conflict situations in a positive way where each member benefits resulting into shared learning.</li> </ul>
<b>Time management and leadership</b>	<p><b>To what extent did students:</b></p> <ul style="list-style-type: none"> <li>• Show punctuality? E.g. being in time for the tutorial.</li> <li>• Manage time schedules? E.g. addressing learning objectives in time, adhering to stipulated time in the tutorial discussion, remaining focused to issues.</li> <li>• Exercise leadership skills? E.g. The student chairperson leads the group effectively, his/her strengths &amp; weaknesses and what needs to be improved.</li> </ul>
<b>Self and peer evaluation (Reflective practice)</b>	<p><b>To what extent did students:</b></p> <ul style="list-style-type: none"> <li>• Identify what they did well?</li> <li>• Identify gaps that need improvement?</li> <li>• Evaluate each other (peer to peer evaluation)?</li> <li>• Positively respond to feedback given?</li> </ul>

The structured feedback guide could potentially have a positive impact on health professions education within a PBL tutorial setting, by assisting tutors to frame feedback that comprehensively targets not only knowledge acquisition, but also the acquisition of other non-cognitive competencies. This guide could also be one way through which feedback delivered

within PBL tutorial groups can perhaps become fairly standardized. The unique feature of this feedback tool lies in its structured nature. Structuring the tool is most likely to achieve four things: 1) it is likely to be more feasible to implement and follow; 2) the guide could be one avenue through which students across different tutorial groups receive feedback on the same range of key PBL outcomes; 3) the guide may support tutors to deliver quality feedback that targets institutional learning outcomes; and 4) ensure the most effective use of time.

It should be noted however, that this developed feedback mediation tool focuses on delivering feedback across similar domains by the different tutors at a meta-level and not at content level. The already existing institutional tutor guides have elaborate subject content which tutors should still follow when evaluating knowledge acquisition. Therefore, this developed feedback guide does not supplant the existing tutor guides, but rather it just supplements and enriches it as a way of improving feedback practice in a PBL setting. Though structured, the feedback guide should not also be viewed as being restrictive to the tutor. The tutor should be free to deliver feedback on many other aspects he or she deems necessary for learning as long as the outcomes outlined within the guide are addressed. This mediation feedback guiding tool is also potentially applicable across a wide range of contexts where PBL tutorials are institutionalized and each institution can customize the tool depending on the prevailing contextual factors.

Furthermore, in developing the feedback guide, it was recognized that there have been many frameworks/models suggested in literature for feedback delivery, for example, Hattie and Timperly framework (Hattie and Timperly 2007), Nicol's and Macfarlane-Dick's seven principles (2006), Hounsell et al.'s feedback loop (2008), Mubuke and Leibowitz structured guide (2014) and Orsmond et al. (2013) GOALS framework of feedback delivery. However, most of these tend to focus on written feedback comments in response to students written assignments and are not comprehensively structured to fit a PBL tutorial setting where feedback delivery occurs in real time and is entirely verbal. The present guide addresses this specific context. It is hoped that this guide makes a contribution to not only literature on feedback, but also to improving the process of feedback delivery within a PBL tutorial setting. Ultimately this improved feedback will hopefully impact on student learning positively, and also on health professions education, especially in the African context.

## 6.5 Summary

In summary, Chapter 6 has provided a synthesis and interpretation of the findings from this study. Activity Theory provided the framework consisting of different components upon which the synthesis was anchored. The synthesis has been related to the initial study objectives, relevant literature and other theories that illuminated the study. The discussion has also been occasionally interspersed with a mention of some key likely implications of the findings to both knowledge and practice in health sciences education, laying a foundation for further explanation of the study implications in the concluding chapter. Specifically, a structured feedback guide that could potentially be used as a mediation tool by PBL tutors has been developed and described as an important outcome from the study. The discussion has also emphasized that both cognitive and socio-contextual factors do interact with each other within the PBL activity system to potentially influence the students' response to tutor feedback. The aspect of gender as a significant factor in this interaction has been emphasized. In the next concluding chapter of this thesis, I draw together and further explains the key implications of the findings from the study.



## **CHAPTER 7**

### **CONCLUSIONS, IMPLICATIONS AND LIMITATIONS**

#### **7.1 INTRODUCTION**

At the beginning of this thesis (see section 1.3), I undertook to contribute to both scholarship as well as practice of feedback within the PBL tutorial context. This last chapter points out the contribution of this study in this regard. As a reminder, the problem statement, research questions, study objectives, the methodology used in the study as well as key findings are summarized. Next, a number of key conclusions are presented. The chapter then explains the study implications highlighting the potential contribution of the study to the feedback phenomenon in PBL in the field of health professions education as well as the directions for further research in this area. The limitations of the study are also stated.

#### **7.2 SUMMARY OF THE RESEARCH PROBLEM, RESEARCH QUESTIONS AND STUDY OBJECTIVES**

Many medical schools in Africa have adopted PBL student tutorials as an approach to educate self-directed, self-regulated and reflective learners (see section 1.). PBL student tutorials are reliant on tutor feedback that is aimed at facilitating the learning process. However, students' responses to tutor feedback, the factors that influence such responses and the ways in which students utilize the feedback received, have been under-researched in an African PBL context. African medical schools have, for a long time, relied on PBL models from outside Africa. With the unique settings and challenges in Africa, the subject of feedback in a PBL tutorial context, thus needed to be researched from an African perspective. The main research question that was sought to be answered was: How do students experience and respond to tutor feedback received within a PBL tutorial setting? In order to answer this research question, four sub-questions were posed as follows:

- 1) What are the students' experiences of tutor feedback received in a PBL tutorial?
- 2) What factors influence students' response to and utilization of tutor feedback received in a PBL tutorial?
- 3) How do students utilize tutor feedback received to enhance their learning in a PBL context?
- 4) How do students experience the feedback delivery process in a PBL tutorial setting?

### **7.3 SUMMARY OF THE RESEARCH METHODOLOGY**

An exploratory study, using a case study design with qualitative data sources were used (see section 3.2.1). An interpretive paradigm was specifically adopted as it was considered to be the most suitable to obtain an in-depth understanding of the participant experiences of tutor feedback in a PBL tutorial context. The study involved health sciences students in their third year as well as their tutors. The third year students were considered for the study because they had more experience of feedback within a PBL tutorial setting. The description of the case for this study has been provided in Chapter 3. A case study approach calls for triangulation in order to achieve rigor in the study (see section 3.2.3). In this study, this was achieved by having multiple data collection methods which included student interviews, student focus group discussions, document reviews, tutorial group observations and tutor interviews. The tutors were interviewed to provide a better understanding of the student responses. The rationale for using the different data collection techniques has been explained in Chapter 3 (see section 3.3.3). With regard to data analysis, I have utilized the framework of Miles and Huberman as well as the steps suggested by Creswell (see section 3.4). These provided a more structured approach to the packaging and aggregation of the data. Activity Theory provided the framework for interpreting and synthesizing the findings.

### **7.4 SUMMARY OF THE KEY FINDINGS**

Findings from the study revealed rich data from the students' experiences of tutor feedback in relation to the first objective of the study which was to explore students' experiences of tutor feedback (see section 1.7). A key finding was that students perceived the feedback that they received from tutors in different ways, but that generally, they expressed concerns about the limitations and variation of the tutor feedback. The students articulated a need for feedback not only on knowledge issues, but also with regard to non-cognitive competencies such as team work, communication skills, interpersonal skills, time management and leadership skills.

Findings from the study have also indicated that simply delivering feedback within a PBL tutorial setting is no guarantee that students will use that feedback to promote their learning. There are various interacting factors that were found to influence students to either use or not to

use the feedback. This addressed the second objective of the study, which was about exploring factors that are likely to influence students' response to and use of tutor feedback (see section 1.7). These factors, which were both cognitive (from within the students thinking processes) as well as socio-contextual (from the external environment where the tutorial takes place) reinforce each other simultaneously. Some of the cognitive factors included cognitive load, unspecific feedback and use of complicated language. The key socio-contextual factors included gender related statements, tutor participation in the tutorial session and relationship of tutor with students. Specifically, the aspect of gender as an influencing factor stood out prominently.

The findings from the study have also demonstrated that despite the challenges identified from the students' perceptions, tutor feedback in a PBL environment had positive learning outcomes, and that the students utilized the feedback effectively to enhance their learning. For example, key ways in which students used tutor feedback included promotion of self-regulated skills, activation of prior knowledge to solve presented tasks as well as active engagement in reflective learning. These experiences addressed the third objective of the study which related to an exploration of the ways in which students used tutor feedback (see section 1.7).

Finally, the students' experiences of the feedback process in a PBL tutorial setting were also explored. These experiences of the feedback process spoke to the fourth objective of the study. The feedback process was reported as being uncoordinated with no clear procedures to follow. It was also found out that the mediation tools used in the feedback process such as language and communication skills were sometimes not clear to the students. All the findings from the study were interpreted and discussed using an Activity Theory framework.

## **7.5 KEY CONCLUSIONS FROM THE STUDY**

This study has affirmed what has been previously reported in literature that feedback is an important aspect of the learning process (see section 2.4). However, the study has provided an alternative perspective in three specific ways: 1) it has looked at the feedback process within the context of PBL tutorials, thus in a very particular learning environment, 2) it has done so within an African context where a growing number of medical schools have adopted PBL tutorial models in which tutor feedback is a significant component, and 3) while much of the literature has focused on written feedback, this study has specifically explored the role of verbal feedback. As more medical schools adopt PBL tutorial models and other student-centred learning

approaches, the role of feedback will possibly continue to have particular significance for effective student learning.

The study has not only affirmed the significant role of verbal feedback, but has also positioned this feedback in the context of the PBL tutorial as an activity system, acknowledging the socio-cultural factors, dimensions and relationships that interact within the system to influence the feedback process. The study thus suggests that there are very specific domains within the PBL tutorial system that each have a role to play. In this way, applying Activity Theory has positioned a PBL tutorial group as a *community* of learning, and this could possibly broaden our understanding of the feedback process in a PBL setting. In the African setting, the concept of community is an important component of society where a group of people work together for a common good, being guided by beliefs, values, particular ethos and norms. Each member in this community has roles and responsibilities to play, and there are various factors that influence peoples' interactions in the community. Likewise, the feedback process in a PBL group needs to be viewed as an activity situated in a community where there are mediation tools to execute the activity and there are various roles and responsibilities of the students and tutors. The only difference with the PBL learning community is the fact that there may not be power differentials between students and the tutor who is an elder. This is because with PBL, students direct their own learning activities and the tutor is also part of the PBL community as a participant rather than as an elder as it is in the conventional African community settings. Viewing the feedback process as not only being cognitively driven, but also socio-culturally influenced by various interactive components in a PBL setting thus provides alternative thinking that could influence feedback practice (see section 2.6).

An understanding of the PBL activity system is thus crucial for effective feedback delivery, and approaching the activity of feedback from this perspective is likely to be very valuable. This study thus contributes to what is already known by contextualizing feedback delivery in PBL as an activity occurring in a bounded system, and highlights that socio-cultural theory has a valuable role to play in understanding and possibly improving feedback practice in health professions education (see section 2.6).

The study has further highlighted that within the PBL system, each individual PBL tutorial group may be different, and thus may have different feedback needs. However, there are key common generic components that should be addressed. For example, aspects such as cognitive load, unspecific feedback messages, limited guidelines for tutors and the less emphasis on skills such as communication, leadership, time management and interpersonal skills were key issues

raised in the study. These findings from the study are possibly significant from the context of African medical schools with limited trained PBL tutors. It is envisaged that the feedback tool developed from this study is likely to play a significant role in facilitating the delivery of fairly uniform verbal feedback to students across the different PBL tutorial groups. The fact that this feedback tool is structured and developed from within the context of an African medical school using PBL as a learning approach, should be a starting point for many more African schools to improve their feedback processes during PBL tutorials.

Another key conclusion one can draw from the study relates to the aspect of gender. Gender was found to be a factor within the PBL system that influenced the feedback process. As a socio-cultural factor within a PBL activity system, the gender issue has not been previously reported within African schools implementing PBL tutorials, especially Sub-Saharan Africa. In the other literature outside Africa, feedback in relation to gender in a PBL setting has been less reported as well. This study has demonstrated the fact that gender possibly plays an important role in determining the manner in which students respond to feedback comments. For African medical schools where students admitted are from different tribes, the aspect of gender perhaps becomes even more significant. This is because different tribes in Africa would approach gender-related statements differently. The fact that the gender has been identified within the activity system as a key influencing factor could perhaps offer valuable insight to tutors who frame the feedback statements. In addition to this, this finding perhaps leads us to consider the aspect of gender more seriously in health professions education.

Finally, although, this study has affirmed that there might be universal interacting factors such as language of feedback, clarity and specificity of feedback that could potentially influence response to feedback across all settings (see section 2.4.2), the study has also probably broadened our thinking, that perhaps some factors that might influence response to feedback could actually be context-specific. This observation could direct our thinking of the feedback process in different settings where PBL is practised. For example, this study was conducted in Sub-Saharan Africa, where socio-cultural interacting factors such as gender and relationship of students and tutors proved to be key interacting factors that influenced response to feedback. Such factors might not be an issue of concern in another setting outside Sub-Saharan Africa. Therefore, this calls for careful consideration of how we adopt and take on various PBL feedback models from outside our own settings. For example, despite the fact that many institutions may be implementing PBL tutorials, the feedback tools used in the tutorial process may need to be designed to suit the local context, instead of wholesomely taking on already

designed tools from other settings. Therefore, institutions implementing PBL tutorials and other student-centred learning approaches where social interaction takes place need to design their own mediation tools of feedback delivery that account for the local contextual beliefs, norms and values instead of adopting already developed tools without modifying them to suit the local context.

## **7.6 IMPLICATIONS OF THE STUDY**

This section describes the implications of the findings from this study with the hope of improving both the practice of feedback delivery in a PBL tutorial context as well as further research.

### **7.6.1 Implications for PBL Tutors**

Besides improving the process of feedback delivery, this study has demonstrated a key positive long-term outcome/impact that tutor feedback may facilitate amongst students within a PBL setting. This might perhaps encourage tutors to keep up with this practice of feedback and even improve it further in order to tap into the potential advantages of feedback within a PBL setting. This outcome/impact of feedback relates to the promotion of self-regulated learning processes amongst students. This can be particularly useful in a PBL setting where student-centered learning is at the fore. Self-regulated learning processes such as reflection on what students have learnt, self-judgment, engaging in activation of prior knowledge and formulation of independent learning plans are all strengths of any PBL system, and it has been demonstrated in this study that tutor feedback can facilitate the acquisition of these self-regulated learning attributes. In a PBL setting, tutors should ensure that their feedback is aimed at facilitating students to engage in these self-regulated learning processes, identify strengths and weaknesses for themselves and to ensure that students independently alter their learning to achieve more in future. Therefore, tutors are encouraged to always generate feedback that is aimed at reinforcing or facilitating the achievement of self-regulated learning skills.

However, in order to achieve the aforementioned positive impact of feedback on student learning, PBL tutors need to be aware of the presence of interacting factors that influence the students' response to feedback within a PBL system. Both psycho-cognitive and socio-cultural factors need to be taken into account when framing feedback messages, and find a way of accounting for both sets of factors. An awareness of the presence of these interacting factors could be one way of improving the feedback process and delivering feedback in a way that will

be well received by the students. It is also recommended that the tutors view the PBL tutorial group as a community of learning in which the feedback process is an activity. Executing this activity requires both the tutor and students to have clear roles and responsibilities towards achieving a common goal of having a positive student learning experience. These roles need to be well defined and understood by both the tutor and students.

The tutors also need to perhaps ensure that feedback comments are not perceived as being gender insensitive by the students, if this feedback is to facilitate learning in the desired direction. The potential of gender insensitive statements in making feedback totally ineffective cannot be underestimated as observed in this study. PBL tutors are thus cautioned against use of gender sensitive statements during tutorial sessions. It would rather be good for tutors to try and frame feedback that is all inclusive and does not discriminate based on gender related technicalities.

Within the PBL community, tutors also need to be cognizant of the fact that feedback can have both positive and negative learning effects. It is thus recommended that tutors frame their feedback in such a language that is likely to bring about the positive learning effects. The practice of giving feedback during PBL tutorials should thus be retained as this feedback is likely to result into positive learning effects. It is also recommended that the tutors do actively participate in activities aimed at improving the feedback process in PBL such as involvement in training in the area of feedback delivery as well as involvement in activities aimed at improving existing feedback guidelines.

### **7.6.2 Implications for students**

Students are an important stakeholder in the feedback process within a PBL system. One of the strengths of PBL is the potential it has in developing self-regulated learners, who do not only plan and direct their own learning, but also actively reflect upon what they learn and identify for themselves the best strategies to alter their learning processes in order to achieve more (Wijnen et al., 2017; also see section 2.2). This skill is likely to be of great importance to the students even when they complete their studies and become professionals in the field of practice (Wijnen et al., 2017). It has been demonstrated in this study that self-regulated learning processes such as reflection on performance, formulation of independent learning plans and engaging in self-directed learning strategies that inform learning are very crucial to the students as they become independent learners. This is also supported by literature on PBL (Euler and Kuhner, 2017). Tutor feedback in a PBL setting has been shown in this study to facilitate the acquisition of these



self-regulated skills. Therefore, students are advised to respond to tutor feedback positively and utilize it to inform their learning. As they form their own learning plans and strategies, the tutor feedback can act as a guide to facilitate the process. It is thus recommended that students get fully and actively involved in the feedback process such that they can benefit from the tutor feedback received and acquire the self-regulated learning skills. There is also need for the students to continue providing input regarding the quality of feedback they receive from their tutors for purposes of continuous improvement. This can be done by encouraging students to be actively involved in processes aimed at improving feedback delivery and the quality of feedback they receive from tutors, for example by giving opinions, views and suggestions for improvement.

### **7.6.3 Implications for the Institution**

It is recommended that perhaps the institution needs to strengthen the training of tutors in good feedback delivery practices in order to not only improve the feedback process in a PBL tutorial activity system, but also improve the quality of the feedback such that the desired outcome of training self-regulated learners can be achieved. Knowing that a PBL tutorial is a bound system in which an activity of feedback delivery takes place with various interacting components could probably inform the design of the training for the PBL tutors. There should be a need for the institution to also interest itself in the structured feedback tool that has been developed from this study (see section 6.4). One consideration in this study, was that the variation and perceived limitations of tutor feedback may have been due to a lack of guidelines for tutors regarding the outcomes that the feedback should target. Subsequently, the feedback guide (mediation tool) for PBL tutors has been developed which is structured and applicable across a wide range of contexts. Probably, this has the potential of assisting tutors to deliver feedback across a wide range of competencies that are targeted by a PBL tutorial. The potential of this tool to become a key mediation tool for tutors when delivering feedback during PBL tutorials should perhaps be explored. Although I may not recommend for the immediate adoption of this feedback tool, piloting it by the institution would be a starting point. Piloting the feedback tool was beyond the scope of this study.

### **7.6.4 Implications for theory and further research**

Whilst this study may have made some contribution to the understanding of the feedback process in PBL from the perspective of Activity Theory, there are still aspects and opportunities for more research and further theory building. The structured feedback tool developed from the study needs to be piloted and validated in various settings where PBL is institutionalized,



especially within an African context. This could be done for example by involving a larger number of students and more PBL tutors. The feedback tool would probably also benefit from a participatory action research process as well, where the PBL tutors and the students are actively involved and can give input to make it better. More studies in different settings to apply this feedback tool are thus strongly recommended.

In this study, Activity Theory, which is a socio-cultural theory, has been applied to try and explain the different components and factors that might interact to influence the feedback process within a PBL tutorial system. Much as this can probably assist schools to broaden their understanding of the feedback process in PBL settings, there is need for further research in this area. The application of Activity Theory in this area has been less reported, especially from an African context. Perhaps, there is need to further apply Activity Theory even beyond the PBL system into other learning activities where social interactions occur.

This study focused on an exploration of experiences of feedback within a PBL learning situation. It would be good look at feedback in other learning situations and perhaps ask students to compare and contrast the feedback in these different learning situations. These may include feedback in the clinical/ward environment, feedback on written exams or assignments. The specific role of feedback in PBL learning situations in the African context and the perception that this feedback could be different from other learning situations outside PBL needs more empirical research.

## **7.7 LIMITATIONS OF THE STUDY**

In Chapter 3, some methodological limitations to this study were presented. In this section, these are further expounded upon (see section 3.5). One key limitation of the study arguably lies in the small numbers of participants used, as well as the use of non-probability sampling. This, coupled with the fact that the study was conducted in one specific institution, mean that the findings of the study may not be fully generalized. However, it should also be noted that the goal of qualitative research is not to generalize, but rather to understand a phenomenon in adequate depth and thereafter transfer the study to other settings (see section 3.2.1). On this aspect, this study has arguably achieved that goal. I have endeavored to provide adequate rigor to the study to ensure that the findings are dependable. I have also provided detailed account of the methods and procedures used for easy transferability of a similarly designed study to other settings. With a multiplicity of data collection methods employed, the findings do still contribute to knowledge on the focus area. It is also acknowledged that the presence of the researcher during observations

of the tutorials could to a certain extent have biased the participants in the subsequent interviews and focus group discussions, as well as triggered the tutors to modify their styles of feedback delivery.

In qualitative research, the researcher is always the main instrument in both data collection and analysis (see section 3.2.1). This has an influence on the findings which include researcher subjectivity. In this study, none of the invited respondents declined to participate, and this could possibly have an influence on responses especially when students view the researcher as their lecturer and thus may have felt obliged to participate. However, this interest to participate in the study can possibly be explained by the fact that both the students and the tutors were interested in improving the feedback process and they possibly viewed their opinions as a means of contributing to this cause. Secondly, at the institution where the study took place, there is a strong research culture and both students and staff find it valuable to support and contribute to research. In addition, emergent themes in this study were sent to the participants for constant review and validation. Some components of the findings from the study have also been published in journals, thus adding credibility to the research findings.

Another limitation of this study is that, the study never explored the tutor feedback delivery approaches as the focus of the study was not on delivery approaches. In addition, using open observation without a checklist would probably generate more information especially beyond the process of feedback. This would perhaps have strengthened the interpretations made. Finally, the interviews and focus group discussions focused on recalled student and tutor experiences of feedback in PBL tutorials. Time events could have deterred them from recalling some insightful good or bad experiences, thus introducing an element of recall bias, and thus influencing the overall feedback experiences in PBL. Although, some responses seemed to have been recalled as far back as first year, this is still recognized as a limitation in this study. However, despite the acknowledged limitations, this study still broadens our understanding of the feedback process in a PBL tutorial system from the perspective of Activity Theory upon which more research can build.

## **7.8 CONCLUDING REMARKS**

As I round off this thesis, it would be good for the reader to recall that my philosophical orientation to this study was interpretivism and constructivism within the larger qualitative design approach (see section 3.2.2). I explored the phenomenon of feedback from the perspective of students who were experiencing it in the context of a PBL tutorial group setting.

Some tutors were also interviewed to get a more understanding of the student responses. I eventually made sense of the students' experiences, perceptions and views throughout the research process by not imposing my own beliefs in the field, but partly being guided by literature and theory that informed the study. Findings, insights, theoretical propositions, explanations and eventual implications/conclusions from the study are thus deeply grounded in participant experiences of feedback. It is believed that they make a contribution to knowledge, practice and theory on the subject. Qualitative research facilitates the presentation of findings in a more naturalistic way rather being mechanical or abstract (see section 3.2.1). I would like to conclude by reminding the reader of what was stated at the beginning of this thesis (see section 1.3); that African medical schools, which have adopted PBL tutorial models, have increasingly consumed research and guidelines on PBL and feedback emerging from outside an African context without adjusting them to suit the African local context. Africa has unique characteristics, settings and challenges and thus health sciences education in Africa needs to be guided by solutions from within African institutions driven by African academics. It is thus hoped that the findings, interpretations and implications highlighted in this study can lay a foundation in this regard to not only impact health sciences education and research in Africa, but even beyond.

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## **APPENDIX A**

### **QUESTIONS FOR THE STUDENT INDIVIDUAL INTERVIEWS**

- 1. What do you think feedback means in terms of student learning?** (Prompt the student to give a definition of feedback such that it is clear from the beginning of the interview).
- 2. What has been your general experience of facilitator feedback you receive during your tutorials?** (Prompt the student to give a general view of the feedback process just to set the interview rolling).
- 3. What sort of feedback do you usually receive from your tutor during your tutorials?**

**Prompts:** (*Quality of feedback*)-Is the feedback good or not good? how would it be improved?

(*Clarity of feedback*)-How clear is the feedback you received?

(*Usefulness of feedback*)-Is it useful feedback to facilitate your learning?

(*Specificity of feedback*)- Does it target specific aspects for you to  
Improve/strengthen?

(*Language*)- What do you comment about the language used to give feedback?

- 4. How have you experienced the practice of feedback from the tutor during tutorials?**

**Prompts:** -How does the feedback make you feel within the tutorial setting?

- Do you have any experiences of both positive & negative feedback?

-What is your immediate response within the group setting?

-What is your reaction to the feedback after leaving the group?

-What is your view regarding the different ways of delivering feedback in the tutorial group? (i.e. prompt for tutor feedback, peer feedback and self evaluation).

-What do you comment about receiving feedback in a learning group in the presence of other colleagues?

- 5. How have your experiences of this feedback influenced or not influenced your learning as a student?**

**Prompts:** -Why do you respond to the feedback during tutorials the way you do?

- Does the feedback you received help you to learn?
- In what ways does this feedback help you to learn?
- Are there moments when the feedback prevents you from learning?
- How does some feedback prevent you from learning?

**6. Do you have any suggestions on how feedback delivery to students during tutorials can be improved to make it more effective?** (Prompt the student to give his/her views/suggestions on how feedback delivery can be improved within the tutorial setting, not outside the tutorial setting).

**7. Do you have any other comments please?**

Thank you very much

## **APPENDIX B**

### **QUESTIONS FOR THE STUDENT FOCUS GROUP DISCUSSION**

1. In your opinion, what does feedback mean to you? (*Prompt the group to discuss meaning of feedback in the learning context*).
2. How would you describe the kind of feedback you receive during tutorials? (*Prompt students to discuss key characteristics of feedback like clarity, issues of language used, specificity, usefulness*).
3. How does the feedback you receive in the tutorial influence your learning? (*Prompt students to discuss in the group ways through which feedback either helps them to learn or prevents them from learning*).
4. In what ways do you use the feedback that tutors give you during tutorials? (*Prompt students to discuss ways through which they use feedback received*).
5. In what ways do you think the tutorial group setting affects feedback delivery? (*Prompt the students to discuss issues of the social learning context of a tutorial, receiving feedback within presence of group members*)
6. How can feedback delivered during tutorials be made more effective for students to learn (*Prompt for a discussion of suggestions of improving feedback delivery during tutorials*)
7. Any other comments please?

## **APPENDIX C**

### **INTERVIEW SCHEDULE FOR TUTORS**

1. In your opinion, what does feedback mean in relation to student learning?
2. As a tutor who often delivers feedback to students in PBL tutorials, what are your opinions and views regarding feedback delivery in the tutorial?
3. Could you share any positive aspects of the feedback exercise as practiced in a PBL setting?
4. Are there any challenges you have encountered as a tutor during the process of delivering feedback to your students?
5. In what ways do you think the delivery of feedback can be improved to improve learning in a PBL context?
6. Any other comments please?

**APPENDIX D****OBSERVATION CHECKLIST**

<b>Feedback focusing on tutorial problem discussion&amp; knowledge construction from the problem</b>	<b>Yes</b>	<b>No</b>
Tutor identified positives aspects/strengths of the discussion		
Tutor identified the negative aspects i.e. learning gaps		
Tutor feedback was specific to particular aspects		
Tutor gave feedback to individual students regarding their knowledge		
Tutor gave feedback on activation of prior knowledge		
Tutor gave feedback on understanding key concepts in the problem		
Students received feedback on whether their raised issues were in line with the intended learning outcomes		
Tutor gave feedback on discovery of new knowledge from self-directed learning (at 2 <sup>nd</sup> session of tutorial).		
During feedback delivery, the tutor focused on issues arising out the PBL problem and not on personal individual traits		
<b>Language of Feedback</b>		
Tutor used clear and simple words to frame feedback message		
Tutor used positive and encouraging words to communicate the message		
Tutor used negative & discouraging words to communicate the message		
Tutor communicated the message with toughness and a tense mood		
Tutor communicated with a smile and relaxed mood		
Tutor used motivating words to communicate the feedback message		
<b>Feedback on other aspects of a PBL social learning group/Community of learning (Outside Cognitive knowledge)</b>		
There was evidence of feedback guidelines followed by tutors		
There was presence of ground rules for students on how to give feedback		
Tutor organized the group despite various differences among members, conflicting		

situations or emotional and tense scenarios		
Group members got to know each other through self-introductions		
Feedback was given on student time-management skills		
Feedback was given on leadership skills of students		
Tutor feedback delivered at any time during the tutorial		
Feedback was given on student communication & interpersonal skills		
Feedback was given regarding student conduct in the tutorial (i.e. confidence, self-respect and respect for others)		
Feedback was given on active student participation and sharing of their knowledge with others (i.e. shared & collaborative learning)		

## **APPENDIX E**

### **RESEARCH PARTICIPANT INFORMATION SHEET**

**TITLE OF RESEARCH PROJECT:** Exploring Health Science students' experiences of feedback in a Problem Based Learning tutorial: A Case Study in an African Medical School.

**PRINCIPAL INVESTIGATOR:** Aloysius Gonzaga Mubuuke

**ADDRESS:** Department of Radiology, School of Medicine  
College of Health Sciences, Makerere University  
P.O. Box 7072, Kampala-Uganda  
2<sup>nd</sup> Floor, New Mulago Hospital Complex  
Tel: +256772616788  
E-mail: [gmubuuke@gmail.com](mailto:gmubuuke@gmail.com)

#### **Introduction:**

You are being invited to take part in a research project. Please take some time to read the information presented here which explains the details of the research. Please ask the Principal Investigator about any aspects of the research that you do not understand. It is very important that you fully understand what is involved in this research and that your participation is entirely voluntary. If you decline to participate, this will not affect you in any way and you are free to withdraw from the study at any point. This study has been approved by the relevant Research Ethics Committees at Makerere and Stellenbosch Universities and it will be conducted according to the prescribed ethical guidelines.

#### **What is this research study all about?**

I am conducting a research study to investigate the experiences of medical students in relation to feedback received during their PBL tutorials. The aim is to find out how students use the feedback received in their learning and how effectively that feedback can be delivered by tutors to improve student-centred learning in a PBL context.

#### **Why have I been invited to participate?**

You have been invited because you have been involved in the feedback process during PBL tutorials.

**What will happen if I take part in the study?**

If you agree to be part of the study, the following will occur:

You will participate in a one-hour interview/focus group discussion. The interview/focus group will be done in a private room and at a time that is convenient to both you and me. You shall be asked about feedback delivered during the PBL tutorials. Please remember that the interview/focus group will be interactive with the researcher. Therefore, total confidentiality within the interview/discussion room may not be possible. However, your responses will remain confidential to the rest of the public and you will be requested not to discuss anything outside the interview/discussion room. You will never be identified by name or your response and the researcher will not call you by name during the interview. Participation is voluntary and you can withdraw from the study at any time. Nothing will happen to you if you choose not to participate in the study.

**What will my responsibilities be?**

To provide the investigator with information required which will require setting off some time to provide this information.

**Are there any risks involved in taking part in this research?**

There is a potential risk of loss of confidentiality within the interview/discussion room, but the investigator will safeguard your identity and responses outside the room. You will not be quoted by name in any reports or publications that may result from this study. There are absolutely no other risks that will be encountered when you participate in this study.

**What is the benefit of taking part in this research?**

There will be no direct physical benefit, but the information that you provide may help in effectively guiding the way students learn.

**If I do not agree to take part in the study, what alternatives do I have?**

Whether you agree to participate or not, your activities will not be affected in any way.

**What will happen in the unlikely event of some form of injury occurring as a direct result of taking part in this research study?**

This is not possible as this research only seeks opinions and experiences from you. There is no physical procedure involved.



**Will I be paid in taking part in the study and are there any costs involved?**

You will receive no payment. There will be no costs incurred to you as a result of participating in this study.

**In case there is anything else I need to know about the study?**

If you have any questions about this study or any other concerns or complaints, you can contact the Principal Investigator at:

**Aloysius Gonzaga Mubuuke, Investigator**

Department of Radiology, School of Medicine

College of Health Sciences, Makerere University

P.O. Box 7072, Kampala-Uganda

2<sup>nd</sup> Floor, New Mulago Hospital Complex

Tel: +256772616788

E-mail: [gmubuuke@gmail.com](mailto:gmubuuke@gmail.com)

## **APPENDIX F**

### **PARTICIPANT INVITATION LETTER FOR INTERVIEWS**

Dear.....

#### **RE: PARTICIPATION IN AN INTERVIEW**

I would like to invite you to the above interview that will take place on the.....at.....in.....The discussion will be for one hour and we shall try to keep time. As you may be already aware, the discussion will about sharing your experiences and opinions of the tutor feedback delivered during PBL tutorials.

I am looking forward to interacting with you.

Yours faithfully,

Aloysius Gonzaga Mubuke

Version 1, 5<sup>th</sup> March 2015

## **APPENDIX G**

### **PARTICIPANT INVITATION LETTER FOR FOCUS GROUPS**

Dear.....

#### **Re: Participation in a Focus Group Discussion**

I would like to invite you to a Focus Group Discussion that will take place on the.....at.....in.....The discussion will be for one hour and we shall try to keep time. As you may be already aware, the discussion will about sharing your experiences and opinions of the tutor feedback you receive in your PBL tutorials.

I am looking forward to interacting with you.

Yours faithfully,

Aloysius Gonzaga Mubuuke

Version 1, 5<sup>th</sup> March 2015

## APPENDIX H

### CONSENT FORM

**Title of study:** Exploring Health Science students' experiences of feedback in a Problem Based Learning tutorial: A Case Study in an African Medical School.

**Investigator:** Aloysius Gonzaga Mubuuke, e-mail: gmubuuke@gmail.com

**Tick box**

I confirm that I have read and understood the information sheet related to this study and have had the opportunity to consider the information and ask questions and have had these answered

☐

I understand that my participation is voluntary and free to withdraw at any time without giving reason, without my studies, care or legal rights being affected.

☐

I am aware that responses will be recorded and I give the researcher permission to do so for training and learning purposes.

☐

I understand that all information concerning me will be kept in a confidential way and destroyed once the study is completed.

☐

I therefore agree to take part in this study.

Name of participant.....

Signature..... Date.....

Name of Witness (Researcher).....

Signature..... Date.....

## **APPENDIX I**

### **EXAMPLE OF A STUDENT INTERVIEW TRANSCRIPT**

Before the recording, I greet and welcome the participant, introduce myself and thank the participant for agreeing to take part in this study by attending the interview. I then re-iterate what the study is all about. I also re-iterate that participation is voluntary and one can withdrawal at any time if they so wish and that the interview will take only 45 minutes. Thereafter, the recording starts:

#### **(Recording starts)**

**Interviewer:** Alright, as a student who has been in the College for these three years, I believe that you have got some good experience of the tutor feedback you receive during your PBL tutorials and that you have got various views that you would like to share with us regarding this tutor feedback.

**Participant:** Oh, yes! The time I have spent here so far has given me a lot of experiences and views about the feedback we receive from our tutors during the tutorials. Hmmm, am happy to share with you.

**Interviewer:** Ok that is great. From your own view, since we are talking about tutor feedback here, what does feedback mean to you as a student?

**Participant:** First of all, thank you very much for inviting me to be part of this important study and I appreciate. Regarding your question, hmmmm, what immediately comes to my mind when you talk of feedback are the comments I receive from my tutors about how I have performed when given a learning task. Since we are talking about PBL tutorials, feedback would refer to those tutor comments I receive about my performance in tackling the tutorial problem. It is these comments that I use to study further and understand the tutorial problem.

**Interviewer:** Alright, so in other words feedback would refer to the tutor comments regarding your performance in solving and understanding the tutorial problem which is the learning task?

**Participant:** Exactly.

**Interviewer:** Ok. Our discussion is exactly going to focus around those tutor comments you always receive during your tutorials. Now, could you please share what has been your experiences regarding these tutor feedback or comments during your various tutorials that you have attended since first year up to date.

**Participant:** Hmmmm, do you mean the quality of the comments received, the process of organizing the feedback session or whether the feedback was useful to me or not in my study?

**Interviewer:** All these are very good observations you bring out that we shall discuss about, but let us first talk about the quality of the feedback comments you have received.

**Participant:** Oh ya, I get it. Hmmmmm, there are quite many, but I will try and stick to the most important ones to me (**laughter**). I would generally say that the tutors try their best to give good feedback although there is a lot to improve. First of all, in many cases, **the feedback is not clear**. Am not sure if the tutors intend to do it, but a good number of times, their feedback has not been clear to me. You find that one tutor **says too many things**, but **without really expressing clearly what he or she wants you to receive**. This leaves many of us students a bit confused. Secondly, the feedback is **not specific at most times**. I have witnessed tutorials where the tutor will **tell you many things without hitting the real message** that you need. As a student, I **would like to know exactly what am doing well** and **my gaps**. However, most tutors **will not clearly tell you these things**. I appreciate feedback is **good, but giving us too much information is not only frustrating**, but also **de-motivates many of us to use it to improve our learning** because then you have to go an extra mile to filter out what the tutor wants you to concentrate on. Hmmmmm, am not condemning them, **but their feedback is too general** and **focuses on many issues without pointing out exactly that key message** I want to hear to improve my learning. Then the other issue is about **using complicated words**. I have discovered that **many tutors use hard words when giving us feedback** especially when it comes to medical terminologies. Although we are medical students, some of **these words are too hard for us** and this makes the feedback received lose its quality. These are some of the key issues about the issue of quality of the tutor feedback.

**Interviewer:** Ok, these are very useful observations. So in your argument, I can see that the tutor feedback is sometimes too general and not focused on the key things where you need to improve on your knowledge in addition to the use of complicated terminology when giving this feedback. Am I right?

**Participant:** You are very right and summarized my line of argument.

**Interviewer:** Alright, thanks for these wonderful views about tutor feedback. So with your experience of the feedback for the last three years in line with the observations you have shared with us, would you say that the feedback has been useful to you as a student?

**Participant:** Hmmmmm, at times yes and at times no. Infact, many times it has not been useful. It is only during those moments when the feedback addressed some of the key issues we have already discussed that it became more useful to me (**laughter**).

**Interviewer:** Ok. Are there any other experiences you would like to share regarding the tutor feedback received that we have not discussed yet?

**Participant:** Ooh yes, the target of the feedback. I have realized that the **feedback from the tutors is sometimes too limited**. This is what I mean. When we report in our first year, we normally have an orientation week. During this week, the lecturers talk to us that we shall be learning using PBL tutorials and we are taken through this method of learning. I specifically remember that I was told PBL tutorials help us to learn things like **interacting with members in a group, handling conflicts in a group, working in a team, managing time, critical thinking, how to communicate well and many others**. I was enthusiastic to learn all these aspects because I was told doctors need to have all these. However, **during the tutorials, most tutors give you very few comments on well you have performed in these aspects**. Many tutors emphasize that we should derive the right objectives for the problem. So I kept on wondering whether these other aspects are as important as they told in the beginning when we had just joined. So there is a problem here. Secondly before I forget, aaaaaah, we were also told that with PBL, the tutor makes sure that we **relate what we already know to the new information we are presented with and also our understanding of the problem**. In many cases, **I do not see tutors giving us feedback regarding how well we have done this**. I talked about critical thinking; up to now I do not know whether am a critical thinker and my tutors have not helped me to actually know it. I **noted that the PBL tutors ignore giving us enough feedback on some aspects such as our initial understanding of technical issues in the problem and how well we have discussed them**. So we are left wondering how to access feedback regarding all these issues. I would advise that facilitators also give us feedback regarding our understanding of the main concepts in the problem and knowledge gaps identified. **(There is a knock at the door, recording stopped temporarily and recording resumes after about a minute)**. Yes, I think those are my experiences that I had to share though I have talked too much.

**Interviewer:** Oh, no, there is absolutely no problem. These are indeed very useful views that you have shared and we hope to use them to improve the feedback during tutorials.

**Participant:** As students, we shall be very grateful if this issue is improved.

**Interviewer:** Surely it will improve and your views will be very useful in this regard. Now, I remember you saying that sometimes the tutor feedback would be useful to your learning and sometimes not. Am I right?

**Participant:** Yes, you are very right

**Interviewer:** Alright, do you remember any moments when the tutor feedback was very useful to you in your learning?

**Participant:** Like I said earlier, sometimes the feedback was useful. For example, to me the tutor feedback was useful when it was **targeting certain aspects** where I **performed well** and **where I needed to improve**. When the feedback clearly contained these aspects, it was useful to me. Secondly, I remember receiving very well **feedback that praised my performance** because I used it to even maintain and improve.

**Interviewer:** Ok, what about those moments you think feedback was not so useful in your learning.

**Participant:** There were times when the feedback was **only pointing out bad things**. I know this is good to point out bad things, but it would **de-motivate me** and I **would lose my confidence**. During these bad moments, the feedback was not very useful me because it **left me embarrassed amongst my friends**.

**Interviewer:** Really?

**Participant:** Oh yes (**laughter**). Hmmmmm **when feedback clearly shows that you do not know, you become embarrassed amongst your fellow students** in the tutorial especially when they had respect for you. May be tutors need to find a way of giving us bad **feedback in a way that is not so embarrassing**.



You see in a group setting such as a PBL tutorial group, image matters and clearly blasting a student makes them lose morale. Hmmmm, that is true (**knock at the door, recording stopped. Recording resumes after a minute**).

**Interviewer:** This is an interesting observation you bring out I entirely agree with you. Maybe we shall use it to address the tutors regarding this.

**Participant:** Thanks a lot.

**Interviewer:** Now, we would like to elaborate more on your views and experiences discussed above. Tutors give feedback to you students in order to use it in your learning. In my view, you can choose to either use this feedback or even ignore it. What do you say about this?

**Participant:** You see sir, hmmmmmm, you are very right. I personally, I sometimes use it but some other times I either use just a little of it or even decide not to take it seriously to guide me.

**Interviewer:** Alright. I would think there are some issues that play a role when you are deciding either to use the tutor feedback or not.

**Participant:** Absolutely. There are very many issues that lead me into making my decisions regarding this feedback.

**Interviewer:** Ok. Would you please share with me some of these issues that lead you into making this decision.

**Participant:** Hmmmmmm, Thank you very much for giving this opportunity to air out these views. First of all, **some of our tutors seem not to be content experts** and appear like **they are not well conversant with the tutorial matter** being discussed. I realized this when you ask some of them and they tell you that they will consult with the people who developed the tutorial problems. When such tutors give feedback, I sometimes think it is not genuine feedback since they are not experts. Secondly, the comments from our tutors **would in many cases not address whether we used the matter that we already knew** to tackle the PBL problem. Since recalling past knowledge is essential to solving PBL problems especially in the first session, the tutor needs to tell us how we used this knowledge. When I got feedback that failed to address this, it was not so useful to me. Additionally, we always have learning outcomes given to us at the

beginning of each course unit. I would assume that tutor feedback should be tailored at achieving those outcomes. However, many tutors never relate their comments to those outcomes. Again I used to find such feedback to be not very useful as it would have been.

**Interviewer:** This is an interesting observation you bring out. You mean the tutors never connected their feedback to what you already knew and to what you intended to know?

**Participant:** That is exactly what I wanted to say (laughter). The tutors frequently did not inform us how we performed as regards using our prior knowledge and how we moved to achieving the outcomes. Since we already knew the outcomes from the curriculum, the tutor feedback would have been more useful if these relationships were clearly brought out.

**Interviewer:** Ok, thanks a lot. Any other issues that could have influenced you to use or not to use tutor feedback in the tutorial.

**Participant:** There was also an issue of using complicated words that I had never thought about. May be the tutors thought that since we were third years, we had learnt enough. But sometimes the words used in the feedback were too complicated for me and I simply left them in the tutorial room.

**Interviewer:** Do you mean the tutor was using complex English to deliver the feedback?

**Participant:** No, No, No. It was not actually complex English, but it was mainly the medical terminologies. Some of the phrases were too medical and full of medical sentences and words that I could understand, so they did not help me much. May be the tutor wanted to scare us that these are hard in medical school (prolonged laughter). But the some words were just complicated.

**Interviewer:** Ok, I really understand the situation you are talking about.

**Participant:** Ya, Ya, I also may be wanted to add that sometimes the tutor would embarrass us. I was a victim of this during my second year when one tutor gave feedback directed at me and it was full of bad things. I had not performed well in the discussion and the tutor was simply attacking me directly amongst my peers. This embarrassed me and I felt small and for sure I never picked anything good from that feedback. Another thing is about tutors who never seem to

be interested in our tutorial discussions. They are sometimes reading newspapers or moving in and out periodically. Even when they are present, many tutors just keep quiet and simply watch you discuss. I used to wonder whether we were always on the right track. I remember when I asked one tutor to help us resolve some conflicting opinions and he seemed to be unaware of what we were talking about. He simply asked us to brief him what the discussion was about. Surely I never took his comments seriously because he first of all did not follow our discussion to help him support us. I think the facilitator should be part of the tutorial and a friend to the students. Some facilitators do act like soldiers and create fear amongst students. As students, we punish such people by not listening to their feedback.

**Interviewer:** Thanks for these wonderful experiences. Do you have any more additions to this?

**Participant:** Oh yes, maybe I had forgotten to tell you that what also forced me not to use tutor feedback was when such feedback was too much. I remember some tutors throwing at us too many comments up to the point of breaking down. At that time I did not know what to take in and what to leave out. It was simply too much for me and I would feel my brain oscillating. Such too much information was not very useful to me. One would rather give me small bits of information at different times. Secondly, there were other issues like failure of the tutor to communicate well to us. Some tutors were good at saying what they exactly mean and comments from such tutors were always spot on. However, others were poor at this. Some of their comments were not clear and I could not clearly make out what they mean. I simply ignored rather than straining my mind. Then one of the biggest issues in the tutorial was embarrassing students. Some tutors were so good at doing this which would leave us demotivated. My personal experience was when a tutor said that females are very soft and take time to learn some concepts. To me this was not so good to come from the tutor because it means this tutor was biased. I did not regard his feedback very highly. I think these are some of the issues that would make me decide to use or not to use the tutor feedback.

**Interviewer:** Thank you so much for your very elaborate experiences and these will be very useful in improving the tutorial process. From your views, I can see that sometimes you actually used the tutor feedback well.

**Participant:** That is right.

**Interviewer:** Alright. Would you share with me how you used the feedback in your learning during these moments?

**Participant:** Thank you. Like I said, sometimes the feedback was good and all was not bad. Now back to your question, I used the feedback to evaluate my own performance during the tutorial. The tutor comments would be helpful in assisting me to know where exactly I stand regarding mastering the learning task. Secondly, the feedback was at times very helpful by allowing me to get to know what I did well so that I can maintain. You see sometimes you cannot know what you are good at until someone else tells you. In such times, the tutor comments were very helpful. However, the comments were also helpful to tell me where I was struggling which assisted me to know where to put more effort. I think this is very useful in learning. I think without the tutor comments, maybe I would not have identified my weak areas. I took it positively and it helped me to improve my performance in subsequent tutorials.

You see in PBL, I discovered that the tutor does not directly give you the intended learning objectives. They always leave you to struggle and identify them yourself. This is where the tutor feedback was very important. The feedback always assisted me to come up with objectives that were in line with the intended objectives. I am very sure that without this feedback, I would have struggled to arrive at these objectives.

**Interviewer:** Do you mean without the tutor feedback, you would never derive your objectives?

**Participant:** I would derive the objectives, but the problem is that they could be the wrong objectives. In my own experience, what the tutor feedback would do is to keep me and my friends in check because since the tutors already know the correct objectives, their comments were always viewed as trying to push the students towards achieving the right objectives.

**Interviewer:** Alright, that is clear now. Any other views to share regarding this?

**Participant:** May be lastly, the feedback was very very helpful in my SDL (*SDL in this context means self-directed learning*). During SDL, I would constantly refer to the feedback comments and this made my SDL very interesting. In a way, the tutor comments helped me to become independent when looking for information because I would use them to actively search for information myself.

**Interviewer:** Ok, thank you very much. As we wind up this interesting discussion, I would like to have your comment on the whole tutorial process especially the feedback session. From your experience, was the process handled to your expectations?

**Participant:** I would say some tutors tried. However, generally, the process could have been made better. For example, my greatest issue was lack of guidance on what I was supposed to do during the feedback process as a student. I did not know whether I was supposed to simply keep quiet and listen to the tutor and move away with the feedback or react to it. This was not clear to me and it needs to be improved. Secondly, I think there was at times fear amongst us students. We did not know each other and we did not know the tutor since tutors kept changing very frequently. I think one important thing is for the tutor to ensure that members in the group are united and there is a brotherly bond and good social relationships between them and the tutor. This would ensure good response to tutor feedback. Otherwise there was sometimes disunity and some mistrust of the feedback from the tutor which did not really help me personally. Hmmmmmm, I think this is what I had to say.

**Interviewer:** Thank you very much for your comments. Do you have any other comments you would like to make regarding the issue of tutor feedback from your PBL experience.

**Participant:** Hmmmmmm, (laughter), hmmmmmm, I first of all thank you very much for inviting me to this interview and I hope to see the tutor feedback improve in future. I would strongly advise that tutors sit together and have a common agreement. You see we attend different tutorial groups and we keep changing over every course unit. I have realized that tutors do not comment on the same things for sure. So we end up hopping from one group to the other asking colleagues what their tutor talked about. I think tutors should find a way of harmonizing this issue. This is a serious challenge.

**Interviewer:** Thank you very much once again for this important observation and all the views you have shared. The purpose of this was to get views from you students such that feedback practice within the PBL tutorials can improve. I am very certain that your experiences that you have shared will be very useful in making the situation better. I will contact you as the study progresses to inform you of the stages and even when some recommendation are made and efforts made to improve the situation, you will be informed. Once again, thank you very much for your time (**Recording stopped**).

## **APPENDIX J**

### **EXAMPLE OF A FOCUS GROUP DISCUSSION TRANSCRIPT**

Before the recording, I greet and welcome the participants to the discussion. I re- introduce myself and also try to ask participants to introduce themselves so that the group members can know one another as a means of creating rapport in the group. I re-iterate the what the study is all about and also re-emphasize that participation is voluntary and one can withdrawal at any time if they so wish. I also assure the participants that they will not be identified by name or by their views expressed in the discussion. Thereafter, the recording starts:

#### **(Beginning of the Recording)**

**Moderator:** Thank you very much once again for agreeing to participate in this study that is aimed at improving feedback practice in PBL tutorials and am looking forward to listening and sharing your views regarding this.

**All group members in unison:** Thank you.

**Moderator:** Ok. As we begin, I would like to hear from you what you understand when we talk of feedback.

**Male Voice:** Hmmmm, I think we should hear from the ladies first, you know they say ladies first (**prolonged laughter**).

**Female Voice:** Alright, let me begin off. I think feedback refers to information we get from lecturers about our work. For example how we have performed in an exam. Actually I look at the marks given to us as some form of feedback.

**Male Voice:** Yes, I agree with what she has said, but may be to add on, I think feedback refers to those comments from lecturers like she has said telling us not only how well we have performed, but also showing us where we are still lagging behind.

**Male Voice:** In the case of the tutorial for example, this feedback would be comments about how we discussed the problem, how we derived learning objectives and how we brought out issues that we did not know at the beginning of the tutorial.

**Female Voice:** So in other words, feedback would mean lecturer comments to us as students which should include not only how we have performed, but also show us our gaps that we need to cover.

**Moderator:** Alright, in other words from these views, I get a feeling that for feedback to take place, there must be a learning activity for students, they carry out the activity and then the lecturer gives them comments regarding how well they performed and where they need to improve.

**All group members in unison:** Yes.

**Moderator:** Ok. Since we now all understand and agree on what feedback is, we are going to spend the next couple of minutes discussing your experiences about tutor feedback you receive during PBL tutorials. So as third year students, you have had a good experience of tutor feedback during tutorials since your first year. Would you share your views on this tutor feedback you have received ever since you joined the medical school?

**Male Voice:** Hmmmmm, do you mean the features that characterize the tutor feedback we have been receiving over these years?

**Moderator:** Exactly, this is what we should share.

**Male Voice:** Thank you very much. (**Phone rings**). Sorry, let me switch this off. Uh-uhhh, to start with, I thank our tutors especially those who have been trying their best to give good feedback that stimulates our learning. Some have really tried and we have used this feedback in many situations to drive our learning. However, I have noticed some few issues with this feedback over the time I have attended PBL tutorials. For example, sometimes the feedback has been unclear to me. You find a tutor saying so many things which are not clear and they end up confusing you because you cannot exactly get what they are saying. Some of them do not want you to ask them exactly what they mean, and if they are asked, they even confuse you the more. There is also an issue using very hard language by tutors. I think they think that since we are reached third year, then we know a lot. So when they give us feedback, sometimes the words and terminology used is so hard for hard to understand.

**Female Voice:** Just to add a little bit more on that, the tutors use hard medical terminology that we cannot understand and although the feedback may have been good, it leaves us confused. But I also wanted to give some contribution that over the last years, the tutor feedback is sometimes too much for us to understand in addition to using hard words. For example, a tutor may talk too many things at once or give you too much information that you do not know what to take in and your brain gets confused. We really felt that the tutors gave out too much information at once. We only wish that they could be giving out little bits of information at any one time as this helps us comprehend them better.

**Male Voice:** I entirely agree with her. Sometimes it was too much for me and I guess for my colleagues. I remember one time in my last semester of second year, one tutor would tell you too many things at the end of the tutorial and you could end up picking nothing because you would be left confused. I support the idea of giving out small bits of information at any one time.

**Moderator:** So do you mean the tutors gave out too much information in form of feedback to you? I would think this is good since you received lots of feedback to improve your learning?

**Male Voice:** I think we need to be clear here. The issue is not giving lots of feedback. Actually this is good for us. Our concern was that this information needs to be broken down such that the tutor gives it out in small amounts throughout the tutorial time instead of waiting to give lots of it at the end of the whole tutorial where it then becomes too much.

**Female Voice:** Exactly. Let the tutor break it down into bits that will not stress our brains. I do not see the reason as to why the tutor waits to give all the feedback at the end of the tutorial instead of giving it in small amounts as the tutorial discussion moves on. This way it is easy to handle without straining your mind too much.

**Moderator:** (Knock at the door, recording is stopped and it resumes after about a minute). Ok, back to our discussion, can we have some more views regarding your experiences of the tutor feedback?

**Female Voice:** Sometimes, the tutor feedback was also too general and not focusing on exactly my performance. This occasionally made it hard for us students to use this feedback very well. I would often struggle to filter out what the tutor is exactly requiring to do regarding my



performance with his feedback. I only wish the feedback could exactly point out those key issues where I needed to maintain and improve in my learning.

**Male Voice:** I agree with the previous comment that the tutors were sometimes not exact in their comments which left us with actually more work to do of identifying what the feedback was addressing. But I also wanted to add that the tutor feedback did not cover many things that we wanted to hear. For example, during the tutorials, we are given a problem to solve. We are then required to brainstorm and discuss key concepts in the problem and then use our prior knowledge to explain the concepts. Those concepts we cannot explain then become our learning objectives. Now (**laughter**) the tutors would not give you adequate feedback on this process. I think too many of them, they were interested in making sure that we have derived the intended learning objectives of the problem and this is where feedback concentrated.

**Moderator:** From this discussion, I feel that you as students, you wanted more feedback on many aspects of solving the PBL problem and not only whether you had achieved the intended learning objectives.

**Male Voice:** Exactly Sir! And we were told during our orientation that PBL will teach us how to be critical thinkers who can relate previous knowledge to solve current problems. So it would have been good for tutors to give us feedback on how for example we used out prior knowledge or how we generally interpreted or misinterpreted the problem. I think my colleagues can agree with me that some tutors try to give us good feedback. However, I feel something is lacking. In many situations the feedback is not enough to help us learn in the context of a PBL context for example, we need to know how much our knowledge contributed to solving the problem, how well we have identified our learning gaps and how well we have generally understood and explained the concepts in the problem using the knowledge we already know and, not just telling us that we have formed the correct objectives.

**Female Voice:** In addition to that, like he has said that many tutors would concentrate on telling us whether we have got the learning objectives, there was little emphasis on giving us feedback that would clearly help us identify our learning gaps. This would have been more helpful.

**Male Voice:** Ooooh I had forgotten (**laughter**), as we were being introduced to PBL, we were told that we shall learn how to learn in a group, how to handle conflicting opinions, managing time and communication skills. Actually, when I started attending tutorials, I saw this as an

opportunity to learn these things. However, when it came to feedback, the tutors seem to ignore these things. I only remember few tutors who really took time to tell me how I needed to improve my communication skills and work in a group. To many tutors, the real knowledge content seems to be the priority.

**Female Voice:** I concur with the previous speaker. I do not remember many tutors telling us how well we communicated our ideas and how we needed to improve. I have read some PBL literature and these are emphasized. Even in our daily newspapers, there is a lot of information and complaints about health workers who cannot communicate well with patients and the tutorial seems to be a good place to learn some of these things. However, many tutors seem to divert their feedback away from these issues.

**Male Voice:** There is also an issue of leadership and management. In a tutorial, the discussion is led by students and the tutor only steps in for guidance. Like we were told when joining medical school, this is an opportunity for us to learn how to lead others. However, the tutors would not give adequate feedback to the group chairperson and scribe regarding their performance as leaders of the group and how they needed to improve.

**Female Voice:** For me I enjoyed learning in a group, but as you know with groups, some members are more active than others. I think the tutor feedback sometimes lacked a reflection of how each group member participated in the tutorial. This worked in one group I attended where the tutor would tell each of us how active we participated and pointed some weaknesses that could have prevented some members from being active so that they are worked on. To me this is good because it boosts your confidence and you begin getting active without fear.

**Male Voice:** Before I forget, there is also an issue of time management. I think the tutorial teaches us how to manage our time, but the tutor feedback again had very few comments regarding this issue. It would have been very helpful to tell us as students how well we have managed our time and how we needed to improve.

**Moderator:** These are all very wonderful and insightful observations you are bring out. From what I hear, it looks like the PBL tutorial is not all about getting the content of the problem, but also involves getting many other skills such as communication, time management and many others like you have mentioned?

**Male Voice:** You are very very right Sir (**prolonged laughter**). In fact, this is what we are told from the beginning of first year during orientation week that we shall learn all these skills during PBL tutorials. To our surprise, tutors give limited comments regarding these things.

**(All group members in unison nod in approval)**

**Moderator:** Ok, are there any other views regarding your experiences of the tutor feedback?

**Male Voice:** I think these were the most important issues we had unless my colleagues have something to add on.

**(All group members nod in agreement and no one airs any more views on the issue)**

**Moderator:** Alright, thank you very much for your very wonderful views regarding your experiences of the tutor feedback you receive during your tutorials. Now, I guess that you have used the tutor feedback often in your learning, am I right?

**Female Voice:** Yes, we have used it despite some short-comings that we have discussed.

**Male Voice:** I agree that in quite many situations, we have used it in our learning.

**(Other group members are seen to nod in approval)**

**Moderator:** Alright, that is good to hear. Could you share how you have actually used the tutor feedback in your PBL tutorials to support your learning?

**Male Voice:** Hmmmm, let me start off this time round (**laughter**). The feedback I received from the tutors often helped to recall what I had learnt earlier and apply to solve the tutorial problem. It kind of triggered my memory which I would not have been able to do in the absence of this feedback. Secondly, the feedback always helped to evaluate myself. Sometimes doing a self-evaluation on how you have performed is not easy. With the tutor feedback, I always had direction and a yardstick with which to compare my performance. This greatly helped to maintain what I did well and try hard to identify some gaps though it was hard at times due to the too many comments.

**Female Voice:** I agree with the previous view that feedback helped us to recall what we had already learnt. I can give an example. During our first semester in third year, we had to apply some things we had learnt in first year to solve the problem. However, this would sometimes not

be easy. With the tutor feedback, we could start to slowly recall this previous material which helped us to solve the problem. The feedback was not exactly telling us things direct, but the tutors would try to trigger and stimulate our minds to remember this information. This was very helpful.

**(Voooooooo....ooooooooom-there is a truck passing outside and recording is stopped. Recording resumes after about 2 minutes).**

**Moderator:** Sorry about that. We were still talking about how you used the tutor feedback.

**Male Voice:** Ok, I remember also using the feedback to critically appraise and question my performance. For example, using the tutor feedback, I would try hard by myself to question what I was doing well and where I needed to improve. Though sometimes not easy, the feedback helped to engage in this exercise.

**Male Voice:** The skill of sitting back and looking back upon my performance fascinated most with this feedback thing. Actually, one important thing I am grateful about this whole PBL tutorial thing is learning to look back upon what one has done and try to critically analyze it to ensure what you have achieved and where things have not gone on well. It was difficult to do it alone, but I realized that when the tutor gave us feedback, I automatically started engaging in this process and I think this is good even when one has become a professional to always look back upon what you do and evaluate it against set goals.

**Female Voice:** I agree with all the previous observations and would like to add that the skill of appraising and judging oneself is difficult to learn. In many cases we tend to want to only identify good things about ourselves. In fact, I would sometimes become angry when the tutor gave very bad comments especially where I did not do well. However, the feedback allowed me to identify the good things as well as the gaps where I needed to improve by myself.

**Male Voice:** She has talked about good and bad things, I had forgot to also mention that the tutor feedback also helped to judge myself by identifying both good and bad things regarding my performance.

**Moderator:** I guess you all mean that feedback assisted you to identify areas where you were performing well as well as those areas where you needed to make some improvement?

**Male Voice:** Exactly Sir, you have said politely compared to us (**prolonged laughter from group**).

**Moderator:** Ok, any other views from the group members?

**Male Voice:** There is an important issue of self-directed learning in PBL. This is where we go out by ourselves to search for more information to solve the learning issues that arose from the PBL problem. Now, the tutor feedback was very helpful in making this process better. This is because with the feedback, we would first of all use these tutor comments to guide us to form the correct learning objectives. We would also use them to direct us on exactly what sort of information to look for. This prevented us from wasting too much time on irrelevant information.

**Female Voice:** That is true, but would like to add that the feedback also assisted us to track our learning ensuring that we had covered all the learning objectives and got the right information that we needed. The tutor feedback always kept me on my toes in knowing whether I was on the right track. I thus monitored my own progress and in some instances had to modify my methods of learning so that I get the best quality information from authentic sources.

**Male Voice:** May be to add that apart from using feedback as a guide for us to discover whether we were on the right track, the feedback also sometimes assisted us to modify techniques of learning to ensure that we address all what was said by the tutor.

**Moderator:** So from this discussion, I can observe that despite the challenges with the tutor feedback that we discussed earlier, you actually sometimes used the feedback to influence your learning positively and if the challenges are worked on, the situation will even become better?

**Male Voice:** It is true.

**Moderator:** Is there any one with more to share on this issue?

**(There is no one who shows up)**

**Moderator:** Alright, I once again thank you for these interesting views. Now, I would like to hear your views regarding your use of feedback, but this time let us focus on what influenced you to use the feedback or not to use it. Are there any instances where you actually never used the tutor feedback?

**All group members in unison:** Yes

**Moderator:** Now what influenced you to either use the feedback or neglect it and not use it?

**Male Voice:** There were many issues that influenced my decisions for example. The biggest was giving too much information at the same time. This would irritate me and in some situations I just switched off.

**Female Voice:** I agree with him. When the tutor gave too much information that would disorganize my brain, I tended to neglect that feedback because I would not pick anything.

**Male Voice:** I agree with the previous speakers. I would also add that like we said earlier, feedback that was not exactly targeting specific aspects was not very useful. The most useful feedback was that one that exactly hit the nail by the head (**laughter**). But also, sometimes the tutors would not communicate their feedback very well. In many situations especially during my first year, the issue of communication was so significant since I was just getting used to this system of learning for the first time. The tutors who were unclear in their communication really made it hard for me to use their feedback well.

**Female Voice:** I think the issue of communication is important even today. Some tutors are poor communicators despite the fact that they actually have good feedback comments to give us. So at times you struggle to really get what they mean from the message which in some cases is not easy, so you end up consulting your friends instead.

**Male Voice:** I would also like to add that the interaction between tutor and students is a big factor. Some tutors are too serious and scary while others are friendly and show concern towards their students. I easily absorbed feedback from a tutor who showed more concern than the one who looked scary and disinterested in the students.

**Male Voice:** I totally agree and this is why you can find some students requesting to change tutorial groups because of the presence of a certain tutor. When the tutor is friendly and concerned about students, feedback from such a tutor is likely to be well received by us the students and I can testify about this even in church (**laughter**).

**Female Voice:** As a lady I have to say this. I disliked feedback from a tutor who always showed bias towards us ladies. Certain comments made by the tutors especially the male tutors were actually de-motivating me a lot to continue hearing from such tutors and I never even took their

feedback seriously. When a facilitator says that he has a bias towards females because they are always emotional even during arguments within a tutorial discussion, we cannot take such a facilitator seriously because of such misconceptions. Even feedback from him could be biased not objective.

**Female Voice:** I entirely agree with her. I also saw it happen during my first year when some tutors would make funny comments that are gender sensitive. This was a put off.

**Male Voice:** I actually support my sisters here. I also saw this and this is not good. However, even us males received such comments from some tutors. The point is that the best thing to do is not to target any specific gender through these comments because like we have heard, it demotivates some students.

**Male Voice:** But in many cases tutors use these statements as jokes just to make the tutorial lively.

**Female Voice:** No, No, No (**angry tone**). I think this is not good. These gender sensitive statements may be intended as jokes but like we have seen they affect our learning.

**Moderator:** Ok, let us come back to our main issue. Whether the tutors are meant to crack jokes or not, I think the key issue is to try and avoid such statements.

**Female Voice:** Exactly

**Moderator:** This has been noted. Now, are there any more new views regarding this that we have not yet discussed?

**Male Voice:** I think the other factor that sometimes prevented us from effectively using the tutor feedback was the noticeable lack of active participation of the tutor in our discussions. Sometimes I thought that if a tutor has not actively participated in the tutorial, then what sort of feedback will he give me?

**Male Voice:** I agree with this because, you could observed some of the tutors reading newspapers while others just keep quiet and occasionally move in and out of the tutorial. When I noticed such a tutor, I relied less on his feedback because he had been not actively engaged with us in the discussion.

**Female Voice:** May be to add that this was sometimes made worse by tutors who would come late for the tutorial. Surely the participation of such a tutor is very minimal and they would give feedback at the end of the tutorial. I and I think students would notice such tutors and would not rely heavily on their feedback unless they were content experts.

**Male Voice:** May be to wind up this (laughter), there was an issue of embarrassing students with the feedback. This was true in cases of the bad feedback directed to an individual student. I was at one time a victim of this where the tutor castigated me in the presence of my peers. This really embarrassed me since I was even a student leader at that time. I do not remember using that piece of feedback at all because all I was remembering was how this tutor really embarrassed me (prolonged laughter from the whole group).

**Moderator:** Thank you. These are important issues that you are bringing and we shall use these to improve the feedback practice during tutorials. Are there any other burning views that we have not discussed on this issue?

**(No one shows up)**

**Moderator:** Alright, as we come to the end of this important discussion, I would like us to talk about the tutorial process especially the feedback delivery session. From your experience, are happy with the way the process is organized and conducted?

**Male Voice:** Hmmmm, some aspects of the process are good like allowing group members to talk and also giving feedback itself. However, other aspects are not very good. For example, the groups sometimes are not very well organized. You might find lots of conflicts amongst group members, sometimes group members do not know each other and everyone wants to talk at the same time, so we need some rules may be.

**Female Voice:** Like he has said, sometimes the groups are not well organized. When it comes to the feedback session itself, we do not know what we are supposed to do during feedback. For example, how we respond to the feedback and when to respond to the feedback. Also, sometimes we do not know each other and this also creates conflicts amongst members.

**Male Voice:** I think sometimes learning in a group is very difficult. Some of us are shy while others are dominant. When it comes to feedback, we do not know our role as students. What we



see is the tutor talking to us but we do not know whether to respond immediately or not. These are some of the things that need to be ironed out.

**Male Voice:** What I gather from most of my colleagues and from my own experience, what we need is to have an organized process especially the feedback session, where we know each other and we exactly know our roles in this whole feedback thing. Sometimes the feedback is not clear and you need to seek for clarification, but some tutors will not allow you. This is frustrating. So if we know what we want, then organize this process very well, and then we shall reach our goals. Our appeal to our dear tutors is to make this process as efficient as possible such that it becomes well organized for us students to benefit.

**Female Voice:** Totally agree and no additions (**laughter from the group**).

**Moderator:** This is good to hear. In other words, you would like to see a feedback process that is well organized where you all know your roles and how to execute them to reach your learning goals.

**Male Voice:** Yes, but also we need to know the role of the tutor. In fact we could have steps to follow for the feedback process that include rules and regulations.

(**Some members in the group start yawning loudly**)

**Moderator:** Alright, now as we come to the end of this very productive discussion, I would like to hear from each of you your last comment.

**Male Voice:** To begin with, I thank you for inviting us to this discussion. My request is to consider our views and use them to improve our tutorials.

**Male Voice:** I would like to wind up with something very important regarding our tutors and feedback. I have noted that sometimes the tutors give different feedback from one group to another. Because of this, we are forced to always consult with colleagues from other tutorial groups at the end of every tutorial so that we ensure that we have not missed out on anything important.

**Female Voice:** I agree. We need some form of uniform way of ensuring that tutors give us feedback that at least addresses similar issues. This will prevent us from hopping from one

tutorial group to another and also make us feel at least satisfied with what we get from our tutors.

**Male Voice:** Feedback is very important in our learning. I thank our tutors for trying to give us feedback during tutorials. I however request them to also find some time to address issues such as communication skills, time management, team work and many more that we have discussed in this forum.

**Female Voice:** I would also like to stress the issue of giving us feedback on other things outside the problem such as how we relate with colleagues, leadership skills and how we comprehensively handle the tutorial problem. I guess this is the essence of PBL over lecture method at least according to the little I have read about PBL.

**Moderator:** Hmmmmm, great. Are there any other burning issues before we close off that may be important?

**Male Voice:** I would like to thank you for consulting us about this issue. Many times students are neglected yet they are the consumers of all these things. We pray that something good comes out of this exercise.

**(After a couple of minutes of silence, there seems to be no more issues)**

**Moderator:** These are really commendable views, opinions and experiences that you have shared today. These will surely be used to improve feedback delivery during PBL tutorials both for you and for those that will come after you. This exercise was meant for us to identify where and how we can improve feedback practice in PBL tutorials and they will not in any way affect your studies. In fact, they will likely improve your learning environment. And with such an excellent discussion that we have heard, we have come to the end of our discussion. I thank you very much for sparing some of your valuable time and I am certain that your valuable views will greatly benefit many students and faculty. I once again thank you very much (**recording stopped**).

## **APPENDIX K**

### **EXAMPLE OF A TUTOR INTERVIEW TRANSCRIPT**

Before the recording starts, I welcome and greet the tutor, introduce myself and thank the tutor for agreeing to take part in this interview. I then re-iterate that the study is all about improving feedback practice in PBL tutorials and that his/her opinions will be very vital in achieving this. I also re-iterate that participation is voluntary and one can withdraw at any time if they so wish and that the interview is likely to take between 45 minutes to one hour. Thereafter, the recording starts:

**(Recording starts)**

**Interviewer:** Alright, thank you once again. I understand you have been a tutor of PBL tutorials in this medical school for quite some time now.

**Tutor:** Yes please.

**Interviewer:** Ok. I therefore have belief that you have got important views to share with us regarding the feedback practice during PBL tutorials.

**Tutor:** Yes please and I hope something good will come out of this interaction. Just need a clarification. As a tutor, am involved in many activities during the PBL tutorials and feedback delivery is just one of them. Is this interview only about feedback during the tutorial or the whole tutorial in general?

**Interviewer:** Thank you for that observation. For this interview and in fact for the whole study, the focus is only on the feedback you give to students and the process you go through to give this feedback.

**Tutor:** So it is only about the tutor feedback delivered to students and not the peer feedback that students give each other?

**Interviewer:** Yes, we are going to talk about your feedback specifically as a tutor. The other aspects will probably be investigated later on.

**Tutor:** Alright, I understand.

**Interviewer:** To start with, would you share with us your understanding of feedback in the context of student learning.

**Tutor:** Hmmm, I think feedback is that piece of information that a tutor gives to students which will assist them to identify what they have done well and also identify where they still need to improve. Hmmm, you see it should not only be about what students do not do well, but also what they do well. So briefly that is how I understand it.

**Interviewer:** Thanks for that clear explanation. So as the tutor who has been involved in giving feedback to your student during PBL tutorials, what do you think of this practice?

**Tutor:** Hmmmmmm, well (knock on the door and recording is stopped. Recording is resumed after about 2 minutes). Sorry for this. Could you please remind me of what you had asked before the interruption?

**Interviewer:** Well, the issue was about what you think of the feedback that you as a tutor delivers to your students in your PBL tutorials.

**Tutor:** Well, I would say it is very good practice. You see in our days, this kind of learning was never in existence. Now things have changed, but again we missed out a lot which the current students are getting. The practice of feedback is good in that it allows student to gauge their level of competence. When we tell them what they are doing well, we boost their confidence. Also, when we tell them the areas where they need to improve, it helps them to cover up the gaps. I think this is good practice because it also allows students to address any gaps early enough before a semester ends and this is good learning.

**Interviewer:** Alright, so from your explanation, I can see that this practice of feedback in PBL tutorials seems to be very good and perhaps we should continue with it.

**Tutor:** Ooh, yes, it is very good. You see in PBL, the principle is that you want to have students control their learning and discover new knowledge and skills by themselves and this is very good for them in that when they qualify, they will go with this skill of searching for information by themselves. However, this has been made easy by the tutor feedback. The tutor feedback is so powerful in that it acts as a benchmark for students to see if they are on the right track, so we need to continue with it and perhaps just improve where we see any challenges.

**Interviewer:** This is good. As the source of this feedback, how do you find it to deliver the feedback to students? Is it any easy or?

**Tutor:** (Phone rings). Sorry, let me switch this device off. Ooh, ya, it is never easy to deliver the feedback although it looks simple to a common man. I have learned through some trainings in PBL facilitation and through my cumulative experience as a tutor. When I was a new tutor, it was a big challenge, but right now, I go through the process smoothly.

**Interviewer:** You have talked about some training. Have you received formal training in feedback delivery before?

**Tutor:** Well, as a tutor, the institution normally organizes some trainings in PBL and feedback is one of the components emphasized. Of course the training is not adequate, but at least one learns some skills to help him or her to go through the process during PBL tutorials.

**Interviewer:** So you would think that this training somehow helped you as a tutor to give feedback to your students?

**Tutor:** Very much so.

**Interviewer:** From our interaction, you indicated that feedback in the PBL tutorial setting is very crucial. Could you share with us some of the key positive aspects of the feedback in the PBL setting.

**Tutor:** Thank you very much, and am happy you have started with the good things. One, I would like to emphasize that feedback sort of provides a reference point or gold standard for students to evaluate their performance. This is because, when I give feedback as a tutor regarding a task, I normally would like to ensure that the student uses it to improve their knowledge or skills. So my feedback guides them.

**Interviewer:** So you mean that the feedback would act as a reference point for them?

**Tutor:** Oh, yes and this helps them to keep on track.

**Interviewer:** Ok, any other positive aspects of the feedback exercise that you have to share.

**Tutor:** Hmmmm, yes, there is the issue if real-time and urgency of the feedback. A PBL tutorial is good in such away that the feedback here is in real-time and is immediate. This is very very very (sic) important in that the students gets to know his strengths and weaknesses early enough when issues are still fresh in their minds. The advantage of this is that the students then tries to address those issues early enough without waiting for long. So this feedback in the PBL tutorial is very important.

**Interviewer:** So you think the real-time engagement with the student when giving feedback is very important to them?

**Tutor:** Yes. It is so important because then the student can easily address those comments, and the tutor is able to recall most of them if the time difference in limited.

**Interviewer:** Alright, any other positive aspects of the feedback exercise in the PBL setting?

**Tutor:** If you go and read about the concept of PBL and tutorials, which am sure you have probably done, you can discover that PBL tutorials were meant to be avenues for students to acquire many skills such as communication, conflict resolution, time management, team work and many more. The tutor feedback in the tutorial would ideally be important because as a tutor, I am supposed to deliver feedback on all these aspects that I have mentioned. Sometimes I personally do try to address them, but there are challenges and I hope your study will help us improve in this area.

**Interviewer:** From your view, I get a feeling that apart from knowledge, the PBL tutorial is supposed to give students an opportunity to learn more skills that they might need in the community and that as a tutor, you should give them feedback on these as well.

**Tutor:** You are very right. I know most of us are obsessed with ensuring that the required content is covered and mastered in the tutorial and give little emphasis on things like communication and team work. These are also important because in many cases, doctors for example have failed to manage a patient simply because of poor communication skills. Like I said, I know tutors try, but there could be some challenges.

**Interviewer:** Ok, these are all very good observations that we should perhaps address. Alright, anything else you would like to share that you have identified as a good aspect of the feedback process during PBL tutorials?

**Tutor:** From my own experience, building on what is already known is always very important in learning. Sometimes students just want to get new information. However, we must teach them that for new information to make sense, they must relate it to old information in their memory. The feedback in the tutorial has greatly helped in achieving this. I have observed that when I give feedback, students are triggered to dig deep and recall what they learnt earlier and apply it to a current learning task. Therefore, this process of reflecting backwards has been triggered by my feedback.

Secondly, we always want to train independent and self-directed students. It would not be easy to simply tell students to read on their own. What I have done is to use feedback to stimulate them in learning independently. This feedback guides them to what they should learn and how they should approach it. It does not mean that I give out information to them, but I structure my feedback in such a way that student will use it to look out for the information.

**Interviewer:** Thanks for bringing out all these issues and they seem to be very important for this study.

**Tutor:** Ooh, before I forget, since you are doing this study, I hope you will assist us to improve the feedback process. Like I said, it is very good and like you can see from my explanations, there are many opportunities that tutor feedback in the PBL tutorial setting has to offer. These would even be better if we address some challenges.

**Interviewer:** Thank you for sharing with us those wonderful insights on feedback in the tutorial. Now, talking about the challenges. You have been a tutor and you could have observed or gone through some challenges with this whole feedback exercise in the PBL tutorial.

**Tutor:** You are spot on, the challenges are surely there.

**Interviewer:** Could you share with us some of the challenges that you have observed with the feedback process.

**Tutor:** Hmmm, what can I start with? Hmmm, personally, one key challenge has been the tutorial time. You see we are allocated a specific amount of time on the time-table for each tutorial. During this time, students must discuss a problem to my satisfaction and must meet the learning objectives as stipulated in the tutor guides. At the same time, am expected to give feedback to these students to their satisfaction, and this is always not possible due to limited time. If am to give feedback regarding content, communication, team work, time management, leadership, resolving conflicts etc, I probably need the whole day (laughs loud). So, I simply pick out a few issues to focus on and leave out the rest. Of course, mastery of content is given priority.

**Interviewer:** So much you are aware that feedback should be given on all outcomes, you would rather concentrate on knowledge?

**Tutor:** Yes because it is core. They can communication skills in other ways. Just to get me right, am saying that all of them are important, but time is not enough. If I start talking about communication alone, it will take the whole tutorial time because it is too general.

**Interviewer:** So do you think this would be solved by having more tutorial time?

**Tutor:** Not at all, because first of all that time is not where since students must do other activities. Secondly, you can only have students to concentrate for some time and not for long hours. Since you are doing this investigation, we shall perhaps be triggered to look into this and find a lasting solution.

**Interviewer:** Alright, any other challenge that you have encountered?

**Tutor:** Hmmm, like I said, we have been trained in PBL facilitation and in giving feedback. However, this training is sort of general. It is not specific on aspects such as this is what conflict resolution or communication in the tutorial setting should be. So as tutors we understand these issues differently and they are too subjective. So this is a challenge because we should all be on the same line. It is a big challenge.

**Interviewer:** Do you mean that giving feedback on aspects like communication, team work, time management is a challenge to the tutors?



**Tutor:** Yes in a sense that these are very broad issues. For example, what does time management mean in the PBL tutorial context or what does communication mean? These issues mean different things in different contexts. We probably need to sit down and define these things in our setting and I encourage you to make this get known to the administration so that it improves the learning of our students. You see students may be missing a lot on this.

**Interviewer:** Thanks for this observation and we shall probably bring it to the attention of the administration. Any other challenge you would like to share with us?

**Tutor:** Just to re-emphasize what we have been discussing about, if you look at this tutor guide (shows me the guide), there is nothing like defining what communication, interpersonal skills, leadership etc are. At least if it contains aspects that constitute these skills, it would be easier. Right now, it only shows us the content and learning objectives, nothing to do with communication (laughs). We all have different experiences, so we need these issues to be defined in our guides.

One other challenge I have noticed is the expectation of the students during feedback. Some students would like you to tell them everything single answer which defeats the purpose of PBL and when you refuse, they resent you. I think students need to be told right from the beginning what this feedback is meant for. I think it is meant to guide them to discover on their own, but not to get everything on a silver plate.

**Interviewer:** Alright, anything else to share regarding the challenges you have experienced?

**Tutor:** I think what I have shared is the most important to me. Am just one person, but I think if you collect ideas from the different tutors, you will have a cock-tail of challenges (laughs), and like you said, we must remain cognizant of the time that the interview should take due to many other things that we must do.

**Interviewer:** Thank you very much and just to assure you, that the interview is about to end. Before we close off, I would like to get your opinion on how we can perhaps address the challenges that you have shared with us.

**Tutor:** To me and am a very experienced PBL tutor, one solution will try to address all this. Give us guidance as tutors when we are giving feedback. Of course am addressing this to the

administration. If we are to achieve what PBL has to offer, there is need to perhaps improve the tutor guide by incorporating in aspects to do with feedback. If am told for example that when we talk of time management in a PBL tutorial setting, these are the three or four aspects that you should consider, it will make work very easy, save our time and ensure that students receive feedback on all outcomes. Otherwise, we shall just concentrate on the few core ones.

**Interviewer:** Thanks and this is a good observation from you.

**Tutor:** Yes, but like I said, this is me. Please ensure to talk to a couple of more tutors and see their ideas as well. When you look at all of them, you can then come up with your recommendations to the administration. We shall support you in this exercise.

**Interviewer:** Thanks once again. Anything else you would like to share with us?

**Tutor:** Hmmmm, Nothing really. Just to thank you for taking this initiative and ensuring that you get ideas from us. It is very important because even if you come up with changes, we shall be satisfied that we partook of these changes. Thanks a lot and I wish you the best.

**Interviewer:** Thank you very much for your time and for guiding our learners as well  
(Recording stopped).

**Appendix L: Matrix of the categories from student interviews and focus groups**

<b>Categories from student interviews</b>	<b>Categories from Focus Groups</b>
C1SI.Feedback related to key concepts	C1FD.Learning gaps
C2SI.Feedback on the use of prior knowledge	C2FD.Knowledge acquisition process
C3SI.Feedback and promotion of active discussion	C3FD.Group organization
C4SI.Feedback related to role specification	C4FD.Creating rapport
C5SI.Learning gaps	C5FD.Differing feedback
C6SI.Knowledge construction process	C6FD.Feedback on communication skills
C7SI.Feedback related to resolving disagreements	C7FD.Team work & collaborative learning
C8SI.Feedback and time management	C8FD.Feedback & time management
C9SI.Perceived limited knowledge of tutor	C9FD. Leadership & management skills
C10SI.De-linking feedback from outcomes & prior knowledge	C10FD.Resolving conflicts
C11SI. Language of Feedback	C11FD.Reflective ability
C12SI. Individualization of feedback	C12FD.Unspecific feedback
C13SI.Tutor participation	C13FD. Gender stereotyping
C14SI.Recalling past knowledge	C14FD.Tutor communication skills
C15SI.Linking known concepts	C15FD.Tutor-student relationship
C16SI.Appraising self	C16FD.Remembering
C17SI.Discovering strengths	C17FD. Critiquing own performance
C18SI. Discovering gaps	C18FD.Self-evaluation
C19SI.Identifying objectives	C19FD.Identification of weaknesses
C20SI.Forming of learning schedules	C20FD.Self-directed learning
C21SI.Tutorial group dynamics	C21FD.Monitoring of learning
	C22FD. Searching for knowledge
	C23FD.Variations in tutor comments
<b>Total:21 Categories</b>	<b>Total:23 Categories</b>

**APPENDIX M: EXAMPLE OF A COURSE EXTRACT FROM THE CURRICULUM****CHS 1111 FOUNDATIONS FOR HEALTH PROFESSIONALS EDUCATION****Course Description:**

The course prepares learners to the application of the different methods of adult learning. These methods mainly focus on student centered learning approaches ultimately producing a life - long learner. The course is further intended to model the behavior of a learner through acquiring ethical principles necessary for training and service-oriented health care delivery. The course will also equip the learners with knowledge and skills required to offer basic First Aid care and as well as gain confidence in using the Nursing Process.

**Course Objectives:**

By the end of the course, the student should be able to:

- 1) Describe and apply the principles of adult learning.
- 2) Explain the general principles of ethics and their application in the different health professionals' practices.
- 3) Describe the rights and responsibilities of clients and providers in the health care system.
- 4) Describe and apply the principles of Nursing and First Aid in emergency and routine care.
- 5) Demonstrate effective communication skills with peers, faculty and clients.
- 6) Use Information Technology (IT) in learning.

**Expected Outcomes:**

By the end of the course, the student should demonstrate the following competencies:

1. Knowledge of the principles of adult learning.
2. Knowledge and practice of the nursing process and first aid.
3. Value a broad understanding of working in an inter-disciplinary team.
4. Application ethical principles and human rights.
5. Use effective communication skills.
6. Leadership and management skills.
7. Use of IT in learning.
8. Team work and collaborative learning
9. Interpersonal skills

## **Course Content Outline:**

### Principles of Problem Based Learning

- Self-Directed Learning (SDL)
- Skills labs
- The Tutorial process
- Role of the tutor
- Role of the student
- Methods of Assessment

### Computer Fundamentals

- Introduction to computers
- Description of computer parts
- Basic typing skills
- File Management
- Search features
- Backup
- User Policy
- Online Resources
- Email
- Internet

### Basic Communication Skills

- Verbal communication skills
- The Communication cycle
- Non-Verbal Communication Skills

### Health Professional Etiquette

- Rules of formal relations
- Rules for polite behavior among patients. Comparison of health care industry with service standards of other industries like banks, hotels, airlines and others.
- Medical office protocol: privacy, dress code
- Proper handling of the phone conversation & utilization dialogue
- Pleasant front desk experience, manners
- Handling patient complaints
- Essential elements of communication: 7 steps
  - Open the discussion
  - Build a relationship /Rapport

- Gather information
- Understand the patient's perspective
- Share information
- Reach agreement/Contract
- Provide closure

## **Ethics**

### Principles of Biomedical Ethics

- Autonomy
  - Informed Consent
  - Right to Privacy
  - Right to basic minimum of health care
  - Confidentiality
- Beneficence
- Non-maleficence
- Justice
- Fidelity

### Professionalism

- Definition of a profession
- Roles of different health professionals
- Duties of a professional
- Inter-professional relationship

### Health Worker-Patient Relationship

- Communication
- Duties

## **Rights and Responsibilities of a patient and provider**

### Consumer Rights

- Individual patient respect
- Equity in treatment
- Optimum treatment (best under circumstances)
- The right to adequate information
- Treatment options (self-determination)
- Privacy
- Participation and representation
- Redress/grievances

- The right to die in dignity
- Receive or decline spiritual and moral comfort

#### History taking

- Courtesy
- Dress code, presentation
- Use of simple language
- Effective communication skills
- Acceptable Attitude: Tone, distance expressions
- Respect, Empathy, Non-discrimination, Non-judgmental, avoid counter transference, Avoid personal emotions in decision-making – do not make it personal
- Introduction to principles of Bio-ethics
- Professionalism
- Doctor-patient relationship
- Informed consent
- Confidentiality

### **Principles of Nursing and First Aid**

#### Definition of Health

Personal and environmental hygiene as a measure to prevent illness and promote recovery,

- care of the skin and hair,
- care of the mouth,
- care of bladder and bowels
- environmental sanitation,

#### Principles of Infection Control

#### Principles of First Aid

#### Procedures at emergency situations

#### Common conditions requiring First Aid

- Burns and Scalds
- Bleeding
- Fractures
- Foreign bodies
- Snakes and insect bites

#### Formation and Coordination of the Health Care team

#### Triage and Referral

#### Nursing Process

- Assessment,
- Nursing Diagnosis/medical Diagnosis,
- Planning care,
- Implementation,
- Evaluation and re-assessment

### **Duration of the Course:**

3 Weeks, 5CU, 75 CH

### **Methods of Delivery**

- Lectures
- PBLTutorials
- Skills training
- Clinical exposures
- Demonstrations
- Case studies

### **Methods of Assessment**

Learners shall be assessed using formative, continuous and summative forms of assessments:

- Formative
- Continuous : tutorial sessions and clinical exposures
- Progressive examination (MCQS )
- Summative (MCQS)

### **Resources and Infrastructure**

- Practical: Lab Experiments, Demonstrations, Skills Lab Training, Clinical Exposure and Teachings, Clinical Placements
- Lectures: Literature Searches, Books, Journals, Online databases, Electronic resources, Resource persons, Library, Computer Labs, Patients, Staff, Audio Visual Technologies, Lecture Theatres, Lecture rooms, Lab Space, Office Space, Wards

### **Reading Materials for Nursing & First Aid**

- 1.Lifesaver international First Aid: Student Handbook
- 2.Lifesaver for Babies and Children; Training For Quality
- 3.Expert knowledge - St. Johns Ambulance
- 4.Lowestein & Bradshaw. (2001). Fuzard's innovatie teaching strategies in nursing.(3<sup>rd</sup> ed.)  
An Open publication, Gaithersburg. MD



**APPENDIX N: EXTRACT FROM A TUTOR GUIDE****Problem 1****Title: Naliaka**

Naliaka is a first year medical student who has just finished her lectures on medical ethics. She has encountered concepts such as principles of medical ethics, patient respect, professionalism and respect for colleagues. Most of these concepts are new to her and she has decided to join one of the discussion groups so that they can brainstorm these concepts.

**Course Objectives:**

- i. To explain principles of medical ethics
- ii. To explain the concept of professionalism in medical practice.

**Theme:** Medical ethics and professionalism

**Learning Issues:**

1. What is meant by `medical ethics`?
2. What are the various principles of medical ethics?
3. What is professionalism?
4. What entails professionalism?
5. What does respect for patients mean?
6. What does respect for colleagues mean?

**Intended Learning Objectives:**

1. To explain the principles of medical ethics.
2. To explain the meaning of professionalism
3. To outline ways in which professionals can maintain patient respect.

**Reference:**

1. Beauchamp: Principles of biomedical ethics

**Tutor notes:**

The key principles of medical ethics include: autonomy, beneficence, non-maleficence and justice. Students should clearly bring out these concepts and explain them. Students should also explain the meaning of professionalism and aspects that entail good professional behavior such as good conduct, respect for patients and colleagues, team work etc. The students should also discuss ways in which health professionals can observe patient respect such as confidentiality, listening to them, discussing with them and advising them.